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ECLIPSE GETS WEB-READY

Tools project aims to strengthen key weakness of open-source framework

BY JENNIFER DEJONG

Eclipse backers have taken a first step toward addressing a key weakness of the open-source framework: its lack of support for developing Web applications.

The Eclipse Foundation and the ObjectWeb Consortium in late July announced the Web Tools Platform, a project intended to beef up the Eclipse framework, enabling support for the development of Web applications. "The Eclipse platform has been weak in the Web application tool area," said Christophe Ney, executive director of ObjectWeb, the not-for-profit consortium that played the lead role in proposing the project known as WTP.

Eclipse has been weak in the Web app tool area, says ObjectWeb's Ney.

So far, the project, still in the requirements phase, includes code contributions from ObjectWeb, which contributed Lomboz, its open-source Eclipse plug-in for building Enterprise JavaBeans and other J2EE components; and IBM Corp., which has provided a collection of code, including tools for developing JSP applications and

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Microsoft Running Late On 64-Bit

BY JENNIFER DEJONG

Developers waiting for 64-bit Windows will have to wait a bit longer.

Microsoft Corp. acknowledged in late July that Windows Server 2003 for 64-bit Extended Systems and Windows Server 2003 SP1 will ship the first half of 2005, not by year's end as previously promised. SP1, a service pack with security enhancements, is tied to 64-bit Windows. A Microsoft spokesperson did not specify a reason for the delay but said in a statement: "The development cycle is driven by quality with a focus on the needs of our customers."

The 64-bit edition of Windows is designed to take advantage of the 64-bit extensions to the standard *x*86 instruction set in AMD Inc.'s Opteron and Intel Corp.'s Xeon with Extended Memory 64 Technology processors. Applications written for 64-bit operating systems can process more data per clock cycle and access more memory than those designed for 32 bits. Microsoft has said earlier that applications written for 32-bit Windows are expected to run on the 64-bit version of the operating system.

Linux and Sun Microsystems Inc.'s Solaris already run on the new chips. But the delay is unlikely to have a huge impact anywhere, said Dan Appleman, president of San Jose-based Desaware Inc., which sells software components for Microsoft developers. "Migration to 64 bits is likely to be slow, as is migration to any new technology," he said in a statement. What's more, he said, delays of major products from Microsoft are common, so it's hard to get excited about them.

Microsoft also announced in late July a beta version of Windows Server 2003 for 64-bit Extended Systems (www.microsoft.com/windowsserver2003/64bit/extended/trial), which supports AMD Opteron and Intel Xeon with EM64T. ▮

BEA Loses Key Thought Leaders

BY YVONNE L. LEE

BEA Systems Inc. lost key technical officers in late July and August, but observers said the departures don't necessarily spell danger for the Java application server maker.

The departures preceded the announcement of quarterly revenue that was up 7 percent to US$262 million compared with $245 million for the same quarter in 2003, but in which revenue from software licenses declined to $116 million compared to $127 million for the same quarter in 2003 and $120 million for the prior quarter.

Adam Bosworth, left, and Scott Dietzen have left the company.

First, vice president of engineering Adam Bosworth left to join Google in late July. Then in early August, CTO Scott Dietzen left for undisclosed pursuits.

Mark Carges, who had been executive vice president for strategic global accounts, will replace Dietzen as CTO. Benjamin Reynaud, deputy CTO, remains in his position.

BEA also lost key marketing executives to rival Borland Software Corp., but at a lower level: Rick Jackson, who had been vice president of products and solutions marketing, became the chief marketing officer at Borland; and senior director for product marketing for WebLogic Server, Workshop and Tuxedo Erik Frieberg became Borland's vice president of marketing.

BEA tapped Wai Wang, who had been Computer Associates International Inc.'s vice presi-

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ENTERPRISES WAIT AND SEE ON NEW TOOLS

BY YVONNE L. LEE

Enterprise developers say they are likely to stick with their existing IDEs and text editors for now, even as vendors line up to produce visually oriented development tools that focus on simplifying the coding process by automatically generating code.

Sun Microsystems Inc. introduced Java Studio Creator earlier this year, while other Java tool makers introduced products that use JavaServer Faces to make interface design easier. Microsoft Corp. announced Visual Studio Team System, and Apple Computer Inc., known for easier-to-use software, introduced not only a basic Xcode IDE, but also a visual scripting tool, Automator, to be available with its next operating system.

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SPECIAL REPORT

Back-to-School Reading List

A plethora of tomes to burden your briefcase 31

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Macromedia Flexes Rich-Client Muscle

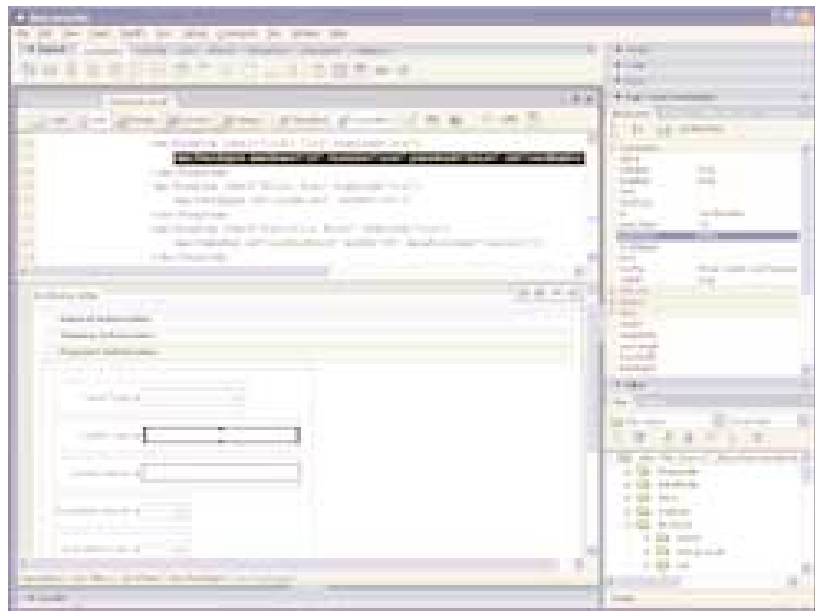
Releases new development environment

BY DAVID RUBINSTEIN

In an attempt to make its Flex rich-client application framework more approachable to designers and developers, Macromedia Inc. on Aug. 23 released FlexBuilder, a development environment with both visual design and coding capabilities.

Flex was created as a way to assemble browser-based applications from back-end components, and includes a library of user-interface components to handle that. FlexBuilder, explained vice president of product management Jeff Whatcott, can be used across the design, user interface, logic and back-end tasks. "A designer can mock up a user interface, a developer codes the logic, and a back-end developer wires the UI to a services-oriented back end."

FlexBuilder, which is included with the Flex license of US$12,000 per two processors, consists of a code editor, visual design view, debugger and network monitor, Whatcott said. All the visual elements of the Flex framework have been embedded into the environment, he added. Like the Dreamweaver tool upon which it is built, FlexBuilder's interface uses a horizontal bar to divide the screen into a code view and a rendering of the code. Developers using the code editor would use Macromedia's proprietary MXML to describe the layout of the application, and then its ActionScript, based on ECMAScript, to create the interaction logic, he explained. "This provides a superset of Dreamweaver functionality," Whatcott said.



FlexBuilder provides the same code/rendering views as Dreamweaver.

The network monitor allows users to visually drill into an interaction, down to the SOAP packet level, as a way to resolve problems, he said.

Whatcott claimed Macromedia has more than 40 customers for Flex since the product was rolled out in March, and said it is being used by companies to bring CRM, SCM and ERP systems together into a single screen, instead of having salespeople or customer-service agents toggle back and forth between five different screens to complete a transaction. ■

'SOFTWARE STILL DOESN'T BEHAVE WELL ENOUGH'

Barbara H. Liskov

Pioneer of object-oriented programming weighs in on how to write better software

BY JENNIFER DEJONG

Her name doesn't dominate software development news, but virtually all languages that programmers use today owe a debt to the early work of computer scientist Barbara H. Liskov.

Best known for her work in data abstraction, a tool for organizing programs that is central to the concept of object orientation, her research in the early 1970s led to the design and implementation of CLU, the first programming language to support data abstraction. Today, languages such as Java borrow ideas from CLU.

Liskov is Ford professor of engineering and associate head for computer science at Massachusetts Institute of Technology, in Cambridge, where she has taught since 1972. Her current research interests include Byzantine-fault-tolerant storage systems, peer-to-peer computing, and support for automatic deployment of software upgrades in large-scale distributed systems. She was recently awarded the 2004 IEEE John von Neumann Medal "for fundamental contributions to programming languages, programming methodology, and distributed systems." SD Times spoke with Liskov about the challenges of writing better software and what it takes to be a good programmer.

SD Times: Many people have said that your work in the 1970s changed the way we think about building complex software. Can you talk about how that work influences current object-oriented programming languages such as Java?

Barbara Liskov: The work I did in the '70s tried to define how to modularize programs, how to divide them into modules that would communicate through a narrow interface. I came up with an idea called abstract data types, which lets you perform operations on a data object, much like the methods used in Java. The idea that objects could interact through call procedures is central to all object-oriented programming. I wasn't the only one involved; there were other [computer scientists] working on similar ideas.

You have described the focus of your research as "how to make better software," saying, "Software is involved in so many things we do, it's critical that it behave properly." How well is it behaving today?

Software still doesn't behave well enough. But it behaves better than it used to. A software system is complex, and it is difficult to make sure it does exactly what it is supposed to do. If you don't build it right, you end up with additional complexity. As we get better at building systems, they are getting more and more ambitious. Programs do much more than they used to.

What aspects of the process still need improvement?

We still don't understand how to reason in a precise and complete manner about software. We are doing research to come up with better techniques to understand what software is doing. Today we do that through testing. But testing still isn't a satisfactory methodology. You can leave out that critical test that would pick up the error. We still have a long way to go in that area.

Another focus of your research has been developing techniques that make it easier to write programs that run on distributed systems. Can you talk a bit about what some of those techniques are?

I was interested in how you design and implement distributed systems, so I brought the idea of object-oriented programming to distributed systems, so they could communicate through the same kinds of calls as programs that ran on a single machine. We took the ideas we came up with in the '70s and applied them to a larger world. We are also looking into the idea of atomicity, making sure that computations that involve many nodes happen completely or not at all.

What impact has the World Wide Web had on software development?

The Web is a distributed system, so you face the problems of trying to make a system run in that environment. Today, unlike 20 years ago, there is a lot more in the way of [commercial offerings] in use to help do that. So you don't have to build software from scratch.

As programming becomes increasingly component-based, programmers are writing less code. How does that impact the skill set required to do the job?

I don't know if I know the answer to that. But to do a good job, you still have to understand what the components are doing and how to put them together. You still have to worry about whether a program runs efficiently enough. You are still concerned with how to build an efficient data structure.

What makes a good programmer?

I think good programmers have to have the ability to think about things abstractly. You need to conceive of your system in a way that somehow allows you to ignore fine-grained details that aren't important to what you are doing, while focusing on issues that matter. Component-based programming gives you a set of [tools] where that has already occurred. If you are working in a more conventional environment, you have to come up with the components, too.

What's your best advice for programmers working today?

Produce a program that runs well enough and works. The goal is not to write the fastest possible program. That's what I try to teach my students.

You were the first woman in the United States to receive a Ph.D. from a computer science department. How many women are pursuing computer science today?

At M.I.T., about 20 to 25 percent of the undergraduates in computer science are women. In the graduate programs, the numbers run about 15 to 20 percent, which reflects a national trend. It's been that way for a while, and it isn't getting any better. ■

News Briefs

NEW PRODUCTS

Microsoft Corp. has introduced **Windows Marketplace**, a shopping site specifically for Windows-compatible software and hardware . . . Scientific Component is offering **PortController.NET**, which implements serial communications using the RS-232 interface. The .NET component costs US$299, and works with Visual Basic. NET, C# and C++ . . . **HitAnalyzer** is a new hosted service from Webmetrics. The service captures, tracks and logs unique visitor IDs, behavior and referring page activity for a Web site. It also monitors page load times, errors, transaction load times and other metrics. Prices start at US$50 per month for up to 50,000 page views. The company had been known as WebmasterSolutions until October 2003 . . . Logic Programming Associates Ltd. is offering **VisiRule**, a graphical charting tool for drawing, testing and generating business rules. The rules are developed in Flex, an expert-system language based on Prolog. The Windows-based software costs US$2,000 . . . BEA Systems Inc. is delivering **WebLogic Server Process Edition**, a high-end version of its application server with built-in tools for business process management . . . Aonix North America Inc. is offering the beta of **Aonix Ada Development Toolkit**, an Eclipse-based IDE for the Ada language. AonixADT includes an Ada-aware editor, a compiler and builder, and a debugging interface. The first release, priced at US$995, will be for Windows; Linux and Solaris versions are planned . . . **Spices.VSIP.NET** is a new set of Visual Studio .NET plug-ins from 9Rays.Net. The components are designed to assist with data modeling, code obfuscation and viewing metadata for newly generated assemblies. There are two versions of the plug-in, one with the obfuscator and modeler for US$29.95, the other adding a decompiler for $492.95 . . . Enea Embedded Technology has announced **Orchestra**, a development and runtime package for building hybrid applications that use its OSE real-time embedded operating system along with Linux. It includes a Linux distribution, OSE, Enea's Polyhedra database, gateway components and development tools from Metrowerks . . . PeerDirect, a division of Progress Software Corp., is offering **PeerDirect Replication Engine**, which provides a control point for distributing and synchronizing data between servers and remote users . . . Informatec SAC is offering **itecDataLayer**, a .NET code generator for building client/server and Web-based applications. The US$19.95 product generates data layer object models based on database schemas . . . IBM Corp. has placed new speech components on its alphaWorks site. The **Embedded Voice Toolkit** for WebSphere Studio lets developers build speech apps into devices using a GUI instead of a command-line interface. Also, version 4.3.2 of the **Multimodal Toolkit** for WebSphere Studio, for combining speech and data using the XHTML+Voice spec, now supports Speech Recognition Grammar Specification 1.0 and Speech Synthesis Markup Language 1.0 . . . Port80 Software is offering **w3compiler**, a utility that compresses and obfuscates Web files to reduce page load time as well as protect source code. The company claims the US$79.95 Windows tool, which works on HTML, CSS, JavaScript, ASP/ASP.NET, ColdFusion and PHP pages, can reduce page size by 40 percent to 90 percent.

UPGRADES

Microsoft Corp. has shipped **ISA Server 2004**, the latest version of its Internet security server. This release adds new application-layer filtering functions for HTTP traffic based on rules and content, a stronger firewall, more Web cache options, and secure remote access to Windows Server 2003 . . . Visual Object Modelers Inc. is offering version 4.0 of its **Visual UML** modeler for Windows. The new release focuses on adding UML 2.0-related features, and also adds C++ code generation and reverse engineering, O/R database schema generation, the ability to add hyperlinks to diagrams, and improved reporting and import/export/merge facilities . . . Cape Clear Software Inc. is shipping **Cape Clear 5**, its enterprise service bus middleware development tools and integration server suite. The upgrade offers graphical data integration, management

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JCP Carves Out The Java Data Mining Spec

JSR 73 yields XML, Web services, vendor interoperability

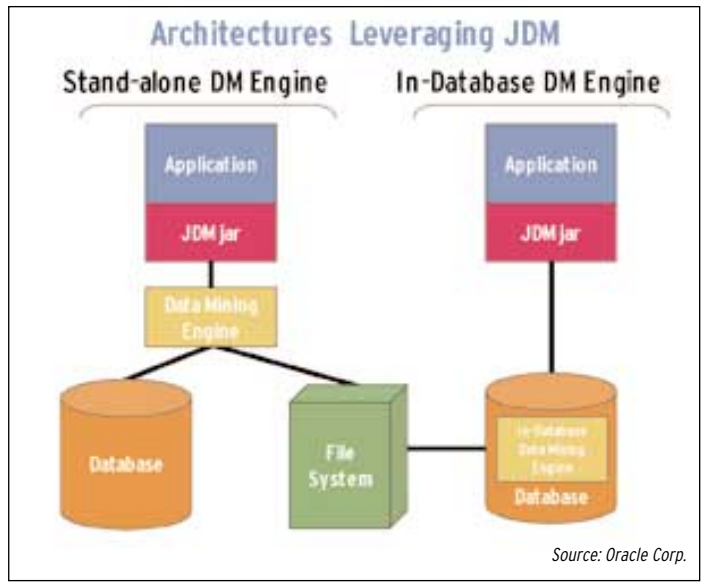
BY EDWARD J. CORREIA

After four years of digging, developers of JSR 73 have finally struck gold. Finalized in August, the Java Data Mining API defines a consistent means of building analytics applications that can interoperate with products from multiple vendors, and with XML and Web services.

According to Mark Hornick, senior manager of data mining development at Oracle Corp. and JSR 73's spec lead, one of the main benefits of the specification is interface uniformity. "Traditionally, individual vendors have APIs for their specific products," and developers building applications around data mining software from IBM, SAS, SPSS and even Oracle currently deal with proprietary interfaces with little in common. "Typically, you would have some home-grown scripting language or have to use C or Java to invoke functionality. With JSR 73, we present a reasonably broad set of capabilities under one standard that multiple vendors can buy into."

Such capabilities include classifications, which Hornick said predict which class a case belongs to; regression, to predict continuous targets; association, which can generate rules based on which items occur together; and clustering, which he described as an unsupervised technique that can identify natural groupings.

"If you were analyzing cancer cells, for example, and you had a lot of data attributes that characterized those cells," Hornick continued, "the clustering algorithm will group different examples according to common characteristics," which can then be further analyzed based on commonality. "The ultimate goal being classification of cancers into types for better understanding of drug reactions or other treatments," he said. Another example of clustering, he said, could include identifying natural groupings of customers based on demographics or buying patterns. "This could facilitate customer segmentation for directing marketing campaigns to each group or cluster," he said.



Developers can now build data mining apps that can migrate between compliant analytics engines.

Also specified is attribute importance, which Hornick said defines how to understand which attributes of a case bring about an outcome, using a hypothetical cell phone carrier to illustrate: "If we're trying to understand customer churn—whether a customer is going to leave and go to a competitor—we might want to see if it's a result of income level, minutes of usage or other attributes."

TRANSFORMATIONS OUT

Absent from the specification are transformations, which describe the changes that data must go through in preparation for the mining process. "Although this is a critical component to the overall data mining solution, it can be argued that it's not something that necessarily should be dealt with in the standard." And argue they did; Hornick said transformations have been a contentious issue almost since the spec's development process began in July of 2000. He said the debate will continue with the development of Data Mining 2.0, now under way.

"We think the committee has achieved good consensus between usability and technicality," said Erik Marcadé, CTO of KXEN Inc., which develops analytics tools for building data mining applications. "This will open more opportunities for integration of predictive and descriptive analytics in business applications. KXEN joined the effort in mid-2003 and developed the reference implementation."

WEB SERVICES IN

JSR 73 also defines a Web services interface, an XML object representation, and interfaces with the Data Mining Group's Predictive Model Markup Language (PMML), which Hornick said "deals with model representation and interchange." The JSR also allows a la carte compliance, which Hornick described as a framework that allows vendors to plug capabilities into the architecture without necessarily complying with the whole spec. "This looked to us as a natural move," said KXEN's Marcadé. "Our position has always been that data mining should be delivered under the form of components to be integrated into operational environments."

KXEN, which is short for knowledge extraction engines, is set to release a JSR-73-compliant implementation of its data mining product by the end of this year; Oracle sometime in 2005. ▮

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Report Creation						
Visual report designer for rapid data access and formatting	●	●	●[1]	●[1]	●	●
Customizable templates for faster, more consistent formatting	●	●			●	●
Repository for reuse of common report objects across multiple reports[4]		●			●	●
Data Access						
PC-based and Microsoft® ODBC/OLE DB for MS Access and SQL Server	●	●	●	●	●	●
Enterprise database servers (ODBC, native)		●	●[1]	●[1]	●	●
Custom, user-defined data through JavaBeans™				●	●	●
Custom, user-defined data through ADO and .NET			●		●	●
Report Integration						
Report viewing APIs (.NET and COM SDKs)			●		●	●
Report viewing APIs (Java SDK)				●	●	●
Extensive report viewer options (DHTML, ActiveX, Java Plug-in, and more)					●	●
APIs for run-time report creation and modification						●
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BUSINESS OBJECTS®

PolarLake Adds BPEL to Integration Suite

Claims addition of new module facilitates longer-term integrated applications

BY YVONNE L. LEE

PolarLake Ltd. in August added Business Process Execution Language (BPEL) to its Integration Suite, a move the company says will make the software more useful in long-lived applications.

"The previous version was and is focused on transactions," said CEO Ronan Bradley. "By adding this feature, we're able to address new types of business problems."

Integration Suite version 4.0 adds a new module, the PolarLake Process Integrator. Its purpose is to orchestrate the process of the application through the assembly of discrete services.

BPEL is a way to assemble those services according to an organization's business processes, and proponents claim it reduces the cost and complexity of process integration initiatives. In service-oriented architectures, several Web services may be strung together in synchronous or asynchronous applications. OASIS' BPEL4WS 1.1 specification is a language for building instructions about how these Web services should interact with one another. For example, it would tell what to do if one application returns a certain variable or indicates a certain state.

Existing elements in the Integration Suite are JIntegrator, Database Integrator, Messaging Integrator and Adapters. The Process Integrator is available only as a part of the overall suite, which is priced at US$50,000 per processor.

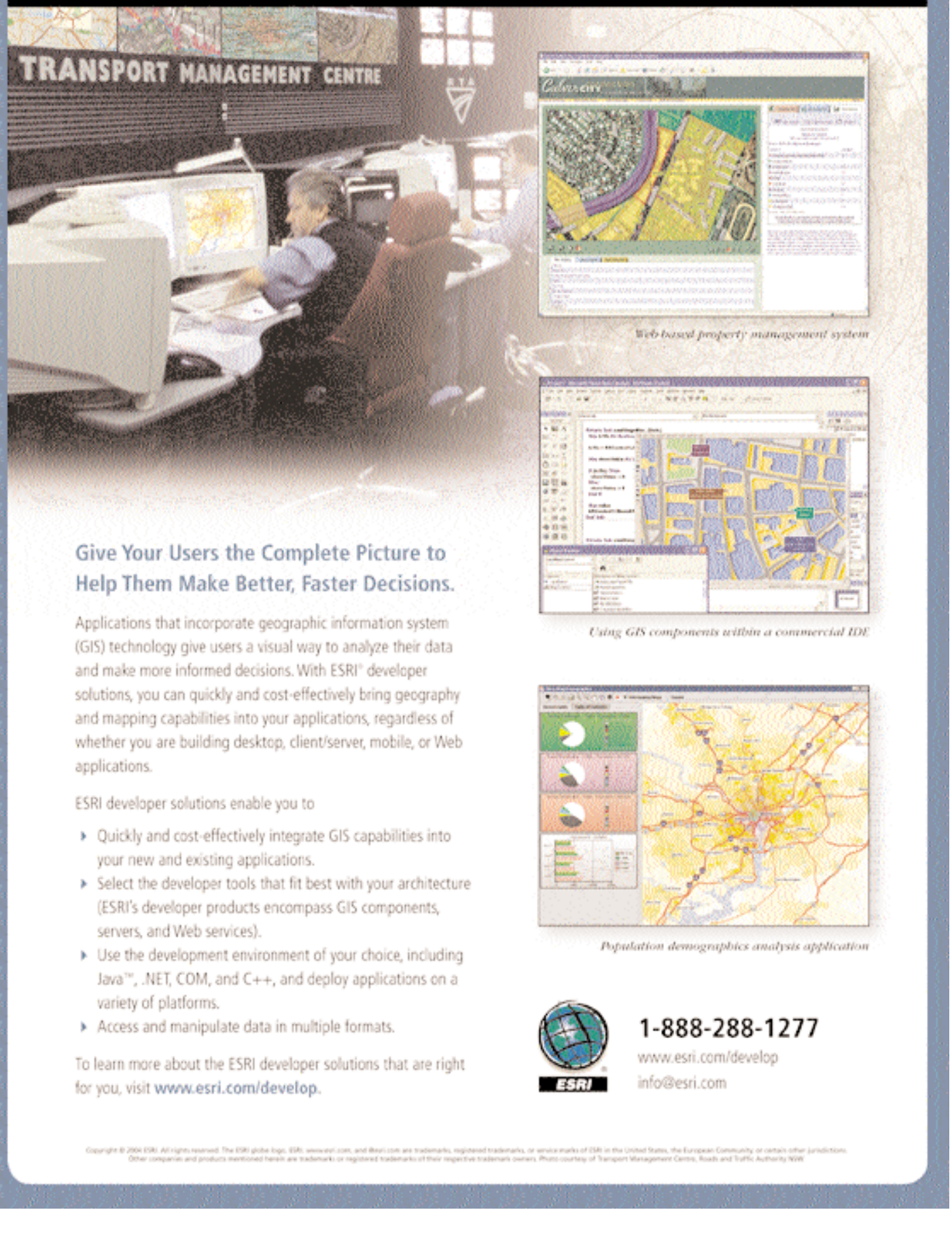
The Process Integrator uses new XML Process Circuits, which are graphic representations of the process flows that create instructions that are processed by the runtime server. Organizations specify the process and the data to be integrated into an application using the circuits in the runtime server. XML Process Circuits use the BPEL4WS 1.1 specification to define the orchestration of the application.

Developers can use the Process Integrator to import and export BPEL definitions to be processed by the runtime server or to be shared with other applications. Messages other than SOAP messages can be included within the orchestration as Process Circuits. Version 4.0 also includes business activity monitoring capabilities, which can keep track of the number of transactions being processed and evaluate the total worth of those transactions. This information can then be stored in and queried from a relational database. PolarLake has added XQuery support to the product for the first time.

"We now allow you to use XQuery to define the routing of information," Bradley said.

Other new features include many-to-many mapping of data, where the previous versions could map one-to-one only, and the ability to integrate non-XML data including comma delimited files. ▮

Build Geography Into Your Applications



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IBM Turns Cloudscape Over to Apache Foundation

BY YVONNE L. LEE

SAN FRANCISCO — IBM Corp. at LinuxWorld announced that it is contributing the source code to the Java-based Cloudscape database, which it acquired in 2001 when it purchased Informix Software, to the Apache Software Foundation.

MORE FROM LINUXWORLD SEE PAGE 18

Cloudscape is a relational database of less than 2MB that can be embedded into Java applications. IBM said its source code is more than 500,000 lines of relational database code, and claimed it is worth more than US$85 million. When IBM originally acquired Informix, Jeff Jones, now director of strategy for IBM DB2 information management software, told SD Times the Cloudscape database and Cloudsync application server were among the key assets IBM was looking to gain.

IBM was more likely to have profited from eliminating database rival Informix and from getting that company's customers to use other IBM products, such as WebSphere, said Bill Whyman, president of the research firm Precursor.

"Cloudscape is relatively small in the scheme of things for IBM," he said.

Following the formal announcement of releasing the Cloudscape code, Jones characterized opening the source code as an attempt to generate more developer interest in the database than it was able to as a closed IBM product.

"I believe it will reach more of the millions of Java developers by going this path than if we kept it commercial," he said. "We would like Cloudscape technology to get more recognition, and this seemed to be a path toward getting it accepted more quickly."

In 2001, he said IBM wanted "to see what synergies are there and look inside to see how we can improve DB2 Everyplace." He said he did not know of any Cloudscape technologies that had made their way into DB2, but that Informix's high-availability disaster recovery and geodetic extender would be in the next version of DB2. Cloudscape technology is embedded in the WebSphere application server and in Tivoli SAN Manager, he said.

IBM's Cloudscape development team will continue to develop the software. IBM will not license the software to end users or developers but will sell support for the product, which will be called IBM Cloudscape 10.0. It is scheduled for release in the fourth quarter of this year.

IBM is marketing the software for small Web sites, point-of-sales systems, local registries and repositories, and small departmental applications.

"Cloudscape is more targeted at a more narrow set of applications," said Precursor's Whyman. "They see more value in trying to create an open-source community than they can in direct sales."

The open-source project, which will be managed by the Apache Incubator, will be called Derby.

The source code is available immediately from IBM developerWorks at www.ibm.com/software/data/cloudscape. ■

VisiRule Writes the Business Rules

BY JENNIFER DEJONG

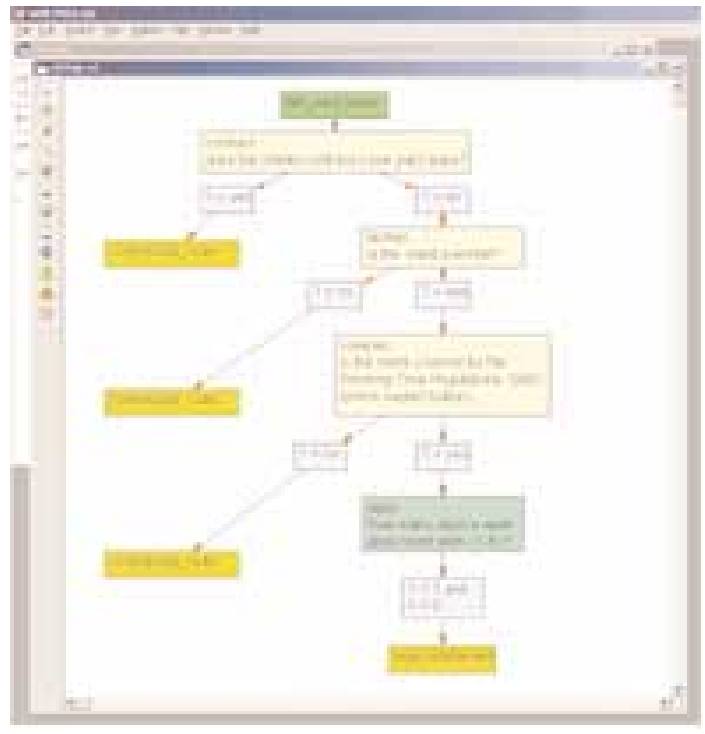
Building on its artificial intelligence expertise, London-based Logic Programming Associates Ltd. last month launched a new tool for writing business rules.

VisiRule 1.0 lets business analysts graphically depict the "if-then" statements that govern how an application behaves. Once the rules are established, the tool generates the code required to execute them, in the form of a C-language library, which developers can embed in any Windows application.

Business rules—conditional statements such as "If the client account is more than three months past due, then refer it to this department"—are typically generated as text-based documents that rely only on indentation to represent relationships among the rules, said LPA's marketing director, Clive Spenser. You end up with pages and pages of text, and it's difficult to follow what's going on, he said.

By contrast, VisiRule, which costs US$2,000 per seat, uses diagrams to visually depict the way if-then relationships branch out. That makes it easy to see at a glance which path the application takes when a rule succeeds and where it goes when a rule fails, said Spenser. "The beauty of a diagram is that you can project it on a wall, and people can argue about it."

Although VisiRule is aimed at business analysts, developers use it to embed the code it generates into Visual Basic, Java and C# applications they write, said Spenser. The product competes with offerings such as Blaze Advisor from Fair Isaac Corp. and ILOG Inc.'s JRules. ■



VisiRule visually depicts how 'if-then' relationships branch out.

IBM Gaining on BEA App-Server Lead

BY EDWARD J. CORREIA

For the third straight year, BEA Systems Inc. maintains its lead in the market for application-server software platforms, with IBM Corp. a close second and Oracle Corp. rounding out the top three. But while BEA's sales have remained relatively flat, IBM has been steadily gaining on the No. 1 spot, according to the Worldwide and North American Application Server Software Platform 2003 Vendor Analysis, a research report published in July by International Data Corp.

While BEA holds its widest lead over IBM in Linux and Unix segments with more than double its revenue, according to IDC, increases in BEA's Linux sales were not enough to compensate for its sagging Unix revenue, which IDC said could spell trouble for the WebLogic developer.

IBM meanwhile is quickly gaining ground, moving from a 17.7 percent share of the North American market in 2001 with US$204 million in revenue, to 25.3 percent in 2002 with $254 million, to its current 27.6 percent in 2003 with revenue of $270.9 million.

BEA's rollercoaster peaked in 2002, when it reached 31.1 percent of the market with US$313 million in sales; it now stands at 30.6 percent with $300.5 million.

IBM has been buoyed by the popularity of its application servers running atop OS/400 and mainframe operating systems, and strong sales of its Domino and WebSphere offerings.

Making a play for IBM's 32-bit Windows segment lead is Oracle, which drew on its large base to drive sales of its much-anticipated Oracle 10g AS product. Linux and Unix sales also increased, and helped overall revenue surge more than 11 percent between 2002 and 2003 to US$170.8 million; the company holds a 17.4 percent market share.

Taking what IDC characterized as a double whammy was Sun Microsystems Inc., which saw its revenue drop from US$105 million in 2001 to $48.1 million in 2003 likely due to a new pricing policy and bundling strategy. Sun now holds a 4.9 percent market share compared with about a 10 percent share in 2001.

In fifth place was Macromedia Inc., which dropped from US$79 million in 2001 to around $30 million for both 2002 and 2003. IDC said the JRun and ColdFusion developer, along with Borland, Iona, Sybase and a few other niche players, are becoming less competitive and more complementary to the market leaders. ■

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Strobe Shines Brighter Light on Mainframe Bottlenecks

BY JENNIFER DEJONG

Compuware Corp. updated its mainframe performance monitoring tools last month, delivering Strobe 3.1 and iStrobe 2.0.

Strobe drills down into mainframe applications that are performing poorly to figure out why, said Compuware product manager Bruce Klenk. Strobe might determine, for example, that a SQL statement in a DB2 database was coded poorly. Although the statement returns the right data, it isn't accessing the data as efficiently as possible. For instance, it might be scanning an entire table when a more limited set of data would be sufficient, said Klenk.

New to 3.1 is support for new releases of IBM software, including version 8 of DB2, version 3.2 of its COBOL compiler, as well as version 5.0 of WebSphere Application Server for z/OS. Strobe can dig down into Java, pinpointing problems such as servlets and methods that are taking too much time, said Klenk.

New to iStrobe, a tool designed to store and analyze application performance data extracted by Strobe, is the ability for users to organize the data the way they want to. For instance, a user could create a category to store performance data pertaining to payroll applications. In the past, users were limited to iStrobe's predefined categories.

iStrobe 2.0 also lets administrators assign users various levels of access privileges, and users add their own tips to iStrobe. ▮

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JBuilder II Gets Optimizeit Request Profiler

BY YVONNE L. LEE

Optimizeit ServerTrace Request Profiler is the hallmark new feature in Borland Software Corp.'s JBuilder 11, which was scheduled to ship in August, according to the company.

"Both 9 and 10 have included the Optimizeit suite. What we're doing now is adding the component-level view of where resources are being spent," said Bill Pataky, senior director of IDE program operations. The request profiler was introduced into the Optimizeit suite in June.

Now, developers can run those tests directly from within the JBuilder IDE.

In July, Borland beefed up Optimizeit with agent software so that it can test live applications, as well as those in preproduction. It specifically drills down to identify where the bottlenecks in an application are.

Other improvements to JBuilder 11 include a new plug-in called Fortify that examines the code for security flaws.

In addition, JBuilder 11 can now build JavaServer Faces. The JSF development interface is similar to the interface the program uses to create Struts applications, Pataky said.

JBuilder 11 also includes J2SE 5 refactoring features.

The integrated testing features are part of the US$3,500 JBuilder Enterprise edition only. The $499 Developer edition does not include application server integration or request analyzer integration. ▮

Sybase Opens DataWindow to .NET Developers

Company also advances PowerBuilder to v10, Adaptive Server Enterprise 15 to beta

BY EDWARD J. CORREIA

Sybase Inc. used TechWave, its annual developers conference in Orlando, Fla., to unveil a pair of products: PowerBuilder 10, the latest version of its rapid application development environment that now supports J2EE and .NET; and an edition of its DataWindow tool for accelerating the creation of data-driven apps that now works with Microsoft's .NET Framework.

The company also released a beta of Adaptive Server Enterprise 15, which it claims is a more scalable, manageable and secure version of its enterprise RDBMS. ASE 15 is scheduled for release mid-2005; new pricing was not announced.

According to Tom Traubitz, senior group product marketing manager for enterprise data management products, ASE's major new features revolve around performance enhancements gained by making XML and Web services protocols native to the database engine and by the addition of XML indexing.

DATAWINDOW VS. DATAGRID

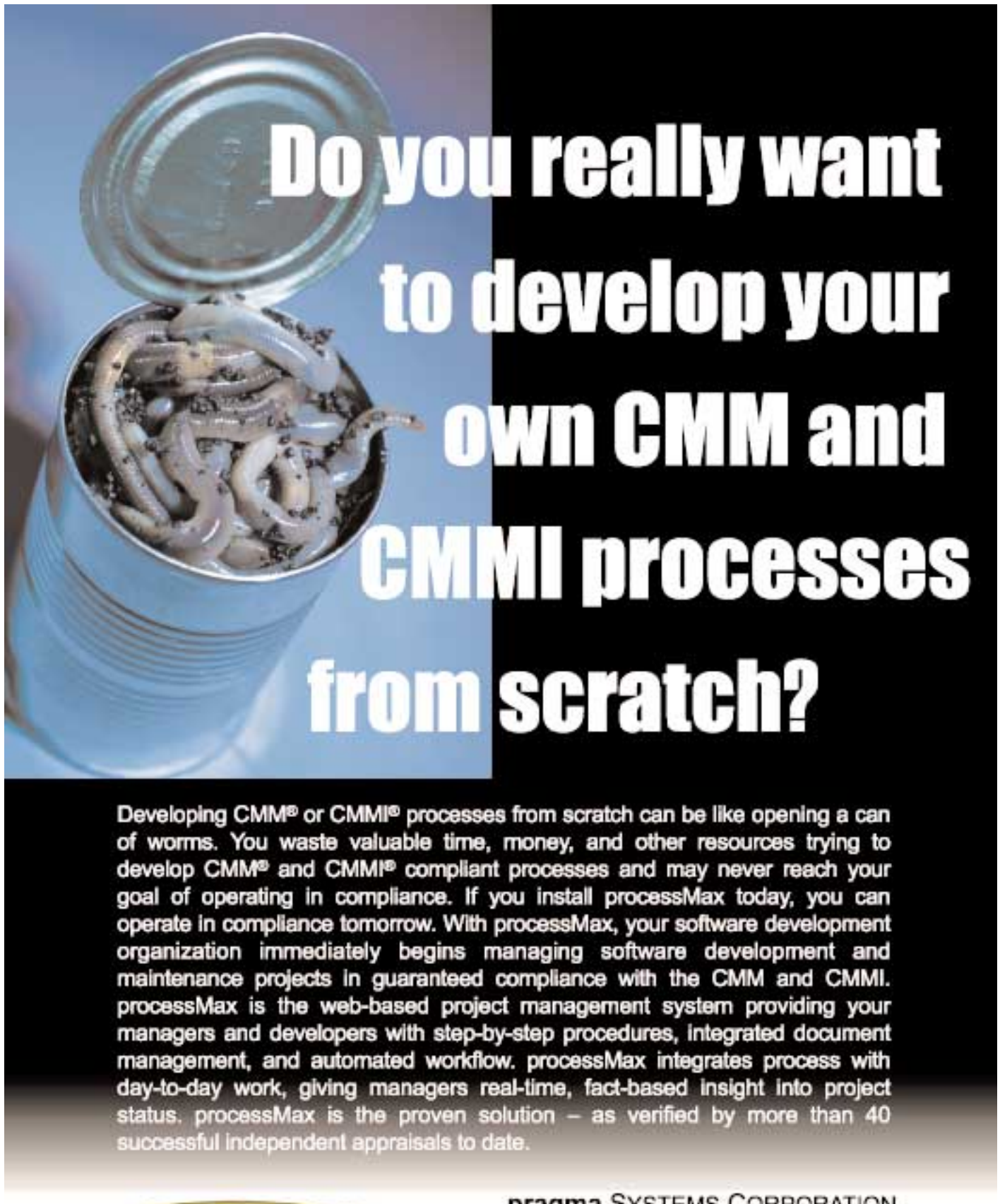
According to David Fish, Sybase's principle system consultant, DataWindow .NET gives developers more control over presentation than Microsoft products when building interfaces for back-end data sources.

Fish compared the US$695-per-seat tool with Microsoft's DataGrid. "With DataGrid, you're limited to the grid style of presentation. With DataWindow you can have grid, tabular, graphs and freeform styles."

Fish also compared DataWindow with similar products from Infragistics and ChartFX. "Those products each only perform a piece of what we do. With DataWindow, users can retrieve and modify data, insert new data, generate graphs and print reports," he said, all with minimal coding, he claimed. "They just call one function and the DataWindow engine determines the appropriate SQL to send to the back-end database." Apps can be written in any Visual Studio .NET language; clients require .NET 1.1 Framework, Fish said. The tool also works with Borland's C# Builder.

The inclusion of DataWindow .NET is among the new features of PowerBuilder 10, Sybase's $2,995-per-seat tool, which also adds support for Unicode and ADO.NET databases.

Also new is a rebuilt version of XML Web DataWindow, which Fish said now offers more control over the look and feel of Web-based data sources and outputs. "Now you can detect the client device and format XHTML for various devices," including Pocket PC, he said. PowerBuilder 10 is available now for Windows workstations. ■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News Briefs

MORE UPGRADES

◂ continued from page 6

via SNMP or JMX interfaces, BPEL-based routing and workflow and enhanced security. Pricing starts at US$20,000 per server . . . Open-Source Technologies Inc. has updated **AMS**, its asset manager system for Windows. Version 2.0 adds new features for project management, asset versioning and workflow, and has tighter integration into IBM's Rational ClearCase, Microsoft's Visual SourceSafe and MKS' Source Integrity . . . Version 5.1 of **Crossfire**, a cross-platform development suite for embedded applications, adds full-screen and SMS support for Pocket PC, PIM Library support for Palm OS and new support for validating events. The software, from AppForge Inc., costs US$1,000 per seat . . . Nikeware is offering version 1.3 of its **Visual Comparer** utility. The US$29 file-comparison tool now offers a number of feature enhancements, including a full-screen viewing mode and a display of the percentage of similarity for files . . . 4D Inc. has released **4th Dimension 2003.4**. The maintenance release focuses on performance improvements for Mac OS X and Windows . . . Mercury Computer Systems Inc. is offering version 5.0 of **Open Inventor**, its cross-platform API for building real-time 3D graphics using C++ and Java. The upgrade now supports Mac OS X 10.3, as well as Red Hat Linux running on AMD64 or EM64T 64-bit *x*86 processors. It also works with programmable shaders and OpenGL 1.5 texture extensions, and offers improved transparency and an interactive scene graph editing tool . . . Flashline Inc. has created new adapters that integrate its **Flashline Registry** asset management system with artifacts and information from IBM Rational ClearQuest, ClearCase and Rational Unified Process . . . Version 3.0 of **dbQuikSite**, a Web site builder from TheDevShop Ltd., adds the new features of building data pages for lists and catalogs, a search page; and add/edit/delete pages for browser-based data management . . . **Studio Enterprise 2004 version 3**, a .NET component suite from ComponentOne LLC, adds new components for generating single-frame and animated Macromedia Flash SWF files. The update also includes new tools for working with menus and toolbars, file previews, data reports, database links and charts . . . Enerjy Software, a division of TeamStudio Inc., has released Edition 5b of its **Enerjy** Java tools suite. The suite contains a thread profiler, code analyzer, performance profiler and memory profiler; the update makes them compatible with Eclipse 3.0 and Oracle JDeveloper 10g . . . Integration tools developer Iona Technologies Inc. has added support for Microsoft's Visual C ++ and Red Hat's Application Server 3.0 in **Artix 2.1**, its legacy-to-Web services environment updated in late July. The software also can now handle multiple message faults after translating COBOL copybook definitions into WSDL. Also, version 4.2 of Orabacus, its small-footprint CORBA ORB, enhances Java applet and app server support.

PEOPLE

AppForge Inc. has promoted **Sue Pinns** to VP of business development; she had been in charge of partner and channel programs . . . **Brian Ford**, founder and director of the Numerical Algorithms Group Ltd., has retired after 34 years with the company. He will be replaced by **Rob Meyer**, who is being promoted from president of its North American subsidiary, NAG Inc. . . . **Rick Reidy** is the new president of DataDirect Technologies Inc., a division of Progress Software Corp. Previously, Reidy managed Progress' research labs.

STANDARDS

The **Open Mobile Alliance**, a consortium of mobile device makers, network operators and software developers, together with the **W3C**, has announced a memorandum of understanding that will enable the two organizations to develop specifications for mobile access to the Web. The intention is to accelerate the development and deployment of new mobile applications and services that operate across disparate devices, carrier networks and geographies. ▮

Start-Up Links Worlds Of Requirements, App Design

Integration tool ties DOORS, Together Control Center

BY DAVID RUBINSTEIN

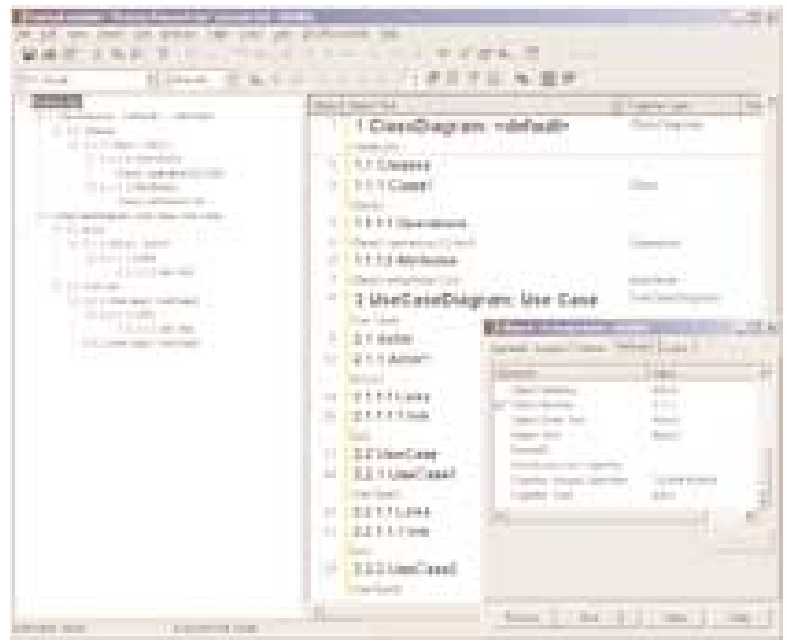
With the blessing of Borland Software Corp. and Telelogic AB, a 1½-year-old company will demonstrate at the Borland user conference this month a new bridge for those companies' respective Together Control Center and DOORS environments.

TCC/Doors Integration, from the Santa Clarita, Calif., company ProcessExchange Inc., is the first of what CEO Jeff Cohen said is a number of products on the company's road map, without getting specific as to what those might be. ProcessExchange is focused on providing Borland, IBM and Telelogic customers solutions to help them integrate their development processes, he said.

The TCC/Doors Integration ensures each domain remains separate but serves as an interface for interaction between them. For instance, a developer could build a model in Together that links to requirements in DOORS via a menu of choices. Or, an analyst can search in DOORS for an element in the model to validate that it fulfills the requirements. Together Control Center will either highlight the elements in TCC/Doors Integration or say it is not found. "We've been able to integrate requirements and development environments with a traceability that will ensure users have a product with all the requirements they asked for," said CTO Mac Felsing. "Now, they spend a lot of time validating requirements in the project."

Cohen said both Borland and Telelogic endorse the project, which he added does not overlap with the integrations Borland and Telelogic are doing within their own tool sets. While Borland has a requirements management tool, Caliber RM, and Telelogic has Tau for modeling, "Borland is focused on integrating Caliber [its requirements management tool] with its ALM suite, while Telelogic is integrating Tau and Doors," Felsing noted. "We didn't want to duplicate their efforts." Cohen claimed there has been interest from companies that own both sets of tools to get them to work together to improve their development processes.

TCC/Doors Integration is an out-of-the-box plug-in with elements for both environments, and costs US$795 per user of Together, with an annual maintenance and support cost of $250. Cohen explained that the pricing is based on the Together users because "an organization could have 100 people working on requirements but only have 20 developers." ▮



The interface helps maintain links between requirements and the model.

SPI Dynamics Turns Up the AMP on Security

BY DAVID RUBINSTEIN

Building on its WebInspect security assessment software, SPI Dynamics Inc. last month released the Assessment Management Platform, a centralized control for a company's coding policies and risk assessment.

With AMP, users can distribute WebInspect sensors, consoles, the database of known vulnerabilities and the repository of rules and policies in any way they need, explained CEO Brian Cohen, allowing them to assess the risks in Web applications in disparate locations, throughout the application life cycle. "The console is the piece from where you can do everything," he said. "You can define policies, classes of users, rules, schedules and review results coming back from various areas."

As the responsibility for ensuring security falls onto developers, Cohen said AMP plugs what he called the Web application security gap. "Hackers want access; developers want functionality," he said. "Developers haven't been focused on security. When executives learn there are vulnerabilities in their applications, they're beside themselves. 'How could this happen?' they ask. Well, in interviews, they ask developers about their work habits, ethics, and the languages they can program in, but they don't ask about secure coding practices. In the next few years, we expect that developers without that skill set will be deemed unqualified."

To solve problems with input validation and error handling—which Cohen estimates constitute 80 percent of the vulnerabilities in Web apps—the company is developing a set of field-validation components that have already been secured against vulnerabilities. Called SecureObjects, the initial release later this year will be for Java and .NET. ▮

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DB2, Web Integration Key to IBM CICS Tools Update

BY YVONNE L. LEE

While much of IBM Corp.'s efforts are focused around Linux, Java and WebSphere, the company is continuing to evolve its CICS tools, with two new product updates.

CICS Business Event Publisher 1.2 and VSAM Transparency Manager 1.1 are designed to make it easier to integrate CICS applications with Web-based applications. The other tools smooth administration, particularly in traditional mainframe applications that link to Web-based interfaces.

"CICS is by far the biggest transaction processing in the world," claimed Rick Thomas, marketing director for the Z Series tools. "Every time you do a transaction at an ATM machine, that is a CICS application."

MAINFRAMES ALIVE AND WELL

Although many predicted the demise of traditional mainframe applications with the advent of the Web, Thomas said that demand has actually increased as large organizations have built Web-based clients that interact with the older software.

"It's very popular for companies to take WebSphere to drive CICS transactions in the back end," he said.

Business Event Publisher 1.2 integrates CICS applications with newer applications using IBM's WebSphere MQ messaging software as the transport. It uses rules so that when an event happens in CICS, a Java process can be triggered from WebSphere, Thomas explained.

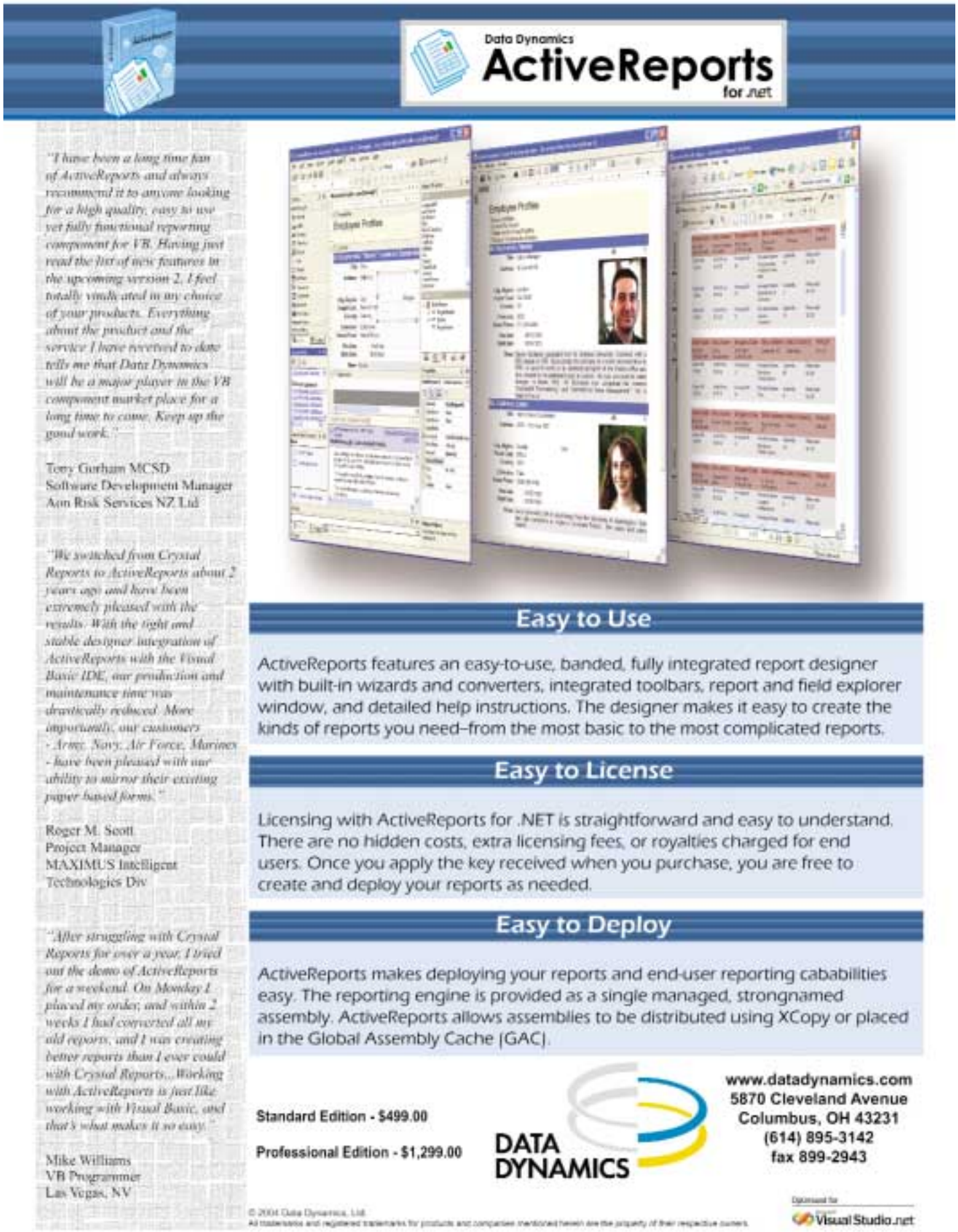
VSAM Transparency Manager allows CICS applications to work with DB2 databases, instead of or in addition to VSAM databases, by making the SQL-based DB2 look like a VSAM database.

Previously, such a migration would mean that the CICS application that previously accessed data in VSAM would have to be rewritten to make SQL calls.

The transparency manager eliminates the need for rewriting and handles the conversion of VSAM and SQL calls.

"It just captures all the database calls that a CICS application makes and then converts them to a DB2 database call," Thomas said. "The CICS application still thinks the data is in VSAM. Now that the data's in DB2, you've opened up that data for all kinds of other uses."

IBM prices its mainframe software according to what it refers to as a "value unit," which is a measure of the size of the computer. The Business Event Publisher has a list price of US$5,000 per value unit and the VSAM Transparency Manager is $3,500 per value unit, which works out to prices starting at $20,000 to $50,000, Thomas said, but he added that almost all IBM customers have individually negotiated discounts. ■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Aon Risk Services NZ Ltd
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OWL Brings New Slice to PIIE

Digital Harbor adds semantic descriptions for intranets, Web services

BY YVONNE L. LEE

Barely six months after the World Wide Web Consortium finished work on the Web Ontology Language (OWL) specification as part of its effort to create the Semantic Web, Digital Harbor Inc. in August released a product that makes use of the specification for internal Web services.

Digital Harbor's proprietary Business Ontology solution is a portion of the company's Professional Interactive Information Environment (PIIE) business integration software, which runs on J2EE. Pricing for the complete software begins at US$50,000. PIIE is a Java-based client/server platform used to assemble composite applications.

The company claims Business Ontology shows how Web services can be related to other information sources, and helps create associations among these elements.

RELATIONSHIPS KEY

Digital Harbor's vice president of product marketing, Austin Wells, said finding relationships among data in business applications can be useful in cross-selling. His company also is marketing the software to financial organizations and health-care organizations, he said.

The Semantic Web provides a common framework that allows data to be shared and reused across applications and among organizations. It is based on the Resource Description Framework (RDF), which integrates a variety of applications using XML for syntax. OWL is a language for building applications that need to process the content of information instead of just presenting information to people. It adds additional vocabulary to those of XML and RDF along with formal semantics.

"Our product is something broader than ontology," said Wells. "Our product is a platform for building composite applications.

"Where that's different from the Semantic Web is the Semantic Web applies ontologies to the public Web," Wells continued. "Instead of going to any arbitrary Web site and scouring the HTML for what the text means, I'm starting to relate different kinds of information in the enterprise. Inside our enterprise, what we'd like to be able to do is see how those pieces of information fit together."

Wells said although Digital Harbor is not designed to be used across the public Internet, it could be used in Web services applications used by trusted business partners.

The software can be added to applications that require people to see information in different systems to do their jobs, Wells said. ■

Novell, Red Hat Go Open-Source With App Servers

JBoss replaces Extend in Novell stack, Red Hat offers version of Jonas as service

BY YVONNE L. LEE

SAN FRANCISCO — Novell Inc. and Red Hat Inc., the two leading Linux distributors, announced at the LinuxWorld Conference & Expo here in August that new versions of their Linux distributions will include open-source Java application servers.

SD Times SHOW REPORT

Novell began shipping the JBoss application server and will phase out its own Extend server in its SUSE Linux Enterprise Server version 9, while Red Hat will ship separately what it calls the Red Hat Application Server, which is based on the European ObjectWeb Consortium's Jonas application server.

Novell's SUSE Linux Enterprise Server version 9, which president Jack Messman referred to as SLES9, is based on the Linux 2.6 kernel and will include the JBoss server and its SDK, documentation, tools and examples. SLES9 includes both JBoss and Novell's own Extend Application Server. The software development kit will include Mono, Novell's project for running .NET applications on Linux, Messman said.

SLES9 is the first release of SUSE Linux since Novell acquired the Linux distributor last year.

The following release of Novell's Extend stack, due in 2005, will include the JBoss Application Server 4.*x* in place of Novell's Extend Application Server, although Novell will continue to provide support for its Extend server. The Provo, Utah, company says that because both application servers are J2EE compliant, it will not be difficult to migrate applications from Extend to JBoss.

Meanwhile, Red Hat is shipping a version of the Jonas application server as an additional service. Organizations can download a version of the Red Hat Application Server and pay for the support subscription as an addition to Red Hat Enterprise Linux subscriptions.

'Will we look at JBoss and, down the road, Geronimo? Yeah, we absolutely will.'

—Paul Cormier, executive vice president of engineering at Red Hat Inc.

"Our strategy is different from others," said Red Hat spokesperson Leigh Day. "Not all customers want or need the application server. You would have a Red Hat Enterprise Linux subscription and choose the Red Hat Application Server as an addition."

Red Hat executive vice president of engineering Paul Cormier said the relationship with ObjectWeb is not exclusive. "Will we look at JBoss and, down the road, Geronimo? Yeah, we absolutely will," he said.

Red Hat will test the Red Hat Application Server for compatibility against BEA's WebLogic, IBM's WebSphere and Oracle's Application Server 10g.

Also at LinuxWorld, Red Hat announced that it will license and distribute Black Duck Software Inc.'s protexIP software for helping organizations developing open-source software to manage their intellectual property. The protexIP service will be the third piece of Red Hat's Open Source Assurance Program. The first part of this program was the Open Source Now fund, which the Raleigh, N.C., company introduced at last year's LinuxWorld Expo to assist organizations with legal expenses they might face if they were to be sued for using open-source software.

The second part, introduced in October, was a warranty that Red Hat would replace its customers' open-source software applications if an intellectual property dispute arose over them.

This new software would help organizations stay legal by keeping a record of any external code, particularly code that is licensed under the GPL. If companies use such code, they must make available any modifications to other open-source users.

The software could help keep customers out of court.

"We don't want to be ambulance chasers," said Red Hat CEO Matt Szulik. ▮

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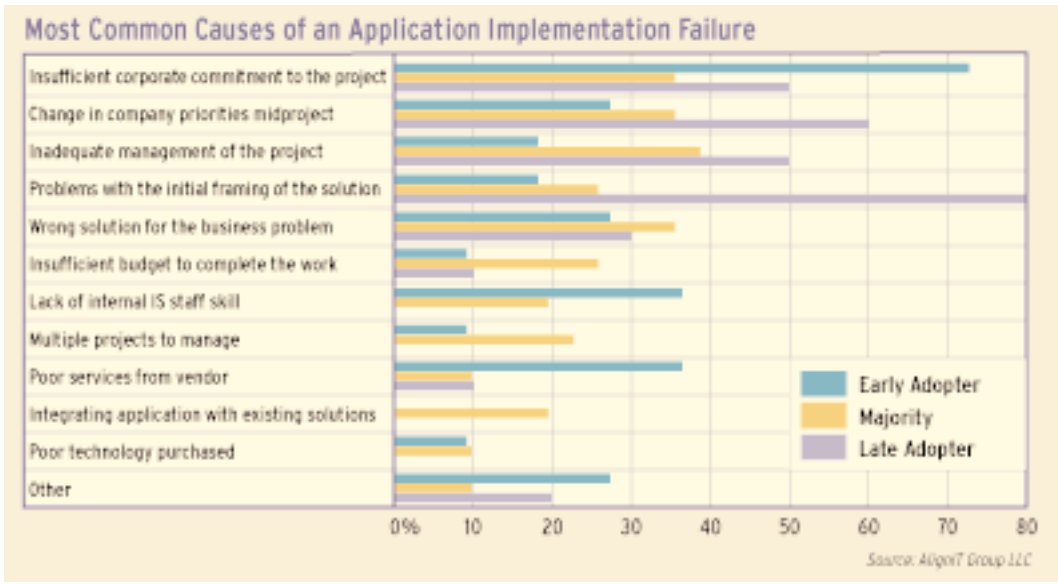
Study Reveals Why Most Projects Fail

Implementations plagued by late changes, lack of commitment



BY EDWARD J. CORREIA

Most developers are likely to have at least one story of the monumental failure of a software implementation project. After all, according to technology researcher AlignIT Group LLC, about 10 percent of all IT projects simply fail, and another 30 percent only partially succeed.

Such were the findings of the IT Adoption Profiles and Application Implementation Failures, a report published by the Newton, Mass.-based firm that assists companies with IT purchasing decisions.

Interestingly, the study found a correlation between project success or failure and the adoption—early or late, relative to other companies—of information technologies such as CRM, SCM and ERP. Perhaps ironic is that among companies typically adopting technologies early, there is a lower project failure rate than among companies that take a more cautious approach by waiting until after the majority has adopted such technologies.

What's more, dramatic differences were identified among early and late adopters in the causes of project failure. Early adopters were most often plagued by insufficient corporate commitment, lack of skill set among technical staff and poor vendor services, the study showed.

Late adopters, on the other hand, suffered most due to problems initially framing the solution, and to midstream changes in company priorities relating to the project. Equally troublesome for late adopters were inadequate project management and insufficient corporate commitment.

A third group, which the study dubbed the majority, shared its worst problems with late adopters. About a third of the majority group experienced insufficient commitment, midstream changes in priorities and inadequate management—three serious problems also reported by late adopters. Equally troublesome for the majority was framing the solution, the worst concern of late adopters but among the minor concerns of the pioneers.

The majority found itself alone in only one problem category: integrating the new application with existing solutions. About 2 in 10 found this a problem; early and late adopters did not. The study found no significant differences in problems encountered among companies implementing prepackaged software or software that was built in-house.

Although changes in priorities might be beyond anyone's control, respondents were asked what single factor helped their last successful project. The most frequent answer, from nearly 2 in 10 of all respondents, was implementing strong project management methods, the same answer given by more than 44 percent of late adopters. Commitment of identified leadership was the next cited success factor at 16 percent of the total group, followed by better planning, analysis and collaboration at 12 percent. ■

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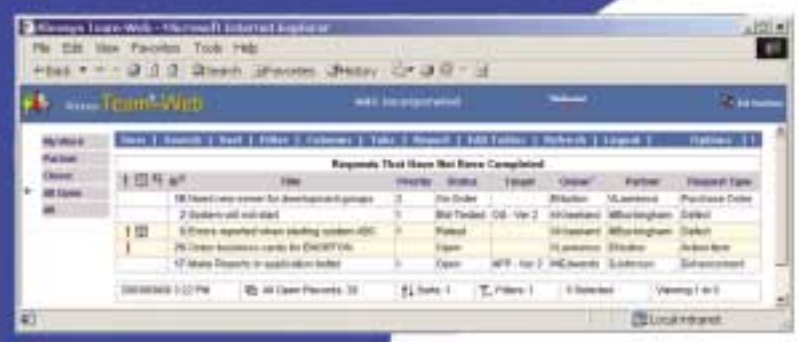

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Universal Translator Exposes Mainframes to XML

DataPower claims secure hardware simplifies integration, requires no adapters

BY EDWARD J. CORREIA

Others have tried, many have failed. Now with the release of XI50, XML hardware appliance maker DataPower Technologies Inc. claims it has succeeded in building a universal translator that it says seamlessly and securely exposes mainframe applications and other enterprise apps as XML data sources.

"Other people have tried to build universal translation engines in the past, and usually they are very slow and hard to use," asserted Eugene Kuznetsov, DataPower's chairman and CTO. That's why, he said, the industry has moved toward solutions that use adapters and middleware-oriented integration.

"We believe we have something different," he said, namely, DataGlue, a proprietary data-oriented programming approach that uses metadata to handle bidirectional conversions to and from XML, flat and binary files, transaction routing, message brokering and data mapping. Supported protocols include HTTP, MQ Series, FTP and JMS.

While the XI50 also supports SSL, Kuznetsov said that many of the intended applications will likely come in through HTTP and use MQ for outbound messaging. "If you're using SSL or [another] transport-layer security, once we get in the middle that link is broken." Data Power solves that problem by including the WS-Security and SAML-based security developed for its Security Gateway product. "We can bind security to an individual message and encrypt it, so regardless of transport, security is bound to the message."

COMPETITIVE EDGE

Kuznetsov said DataPower's legacy technologies included in the XI50 also help set it apart from competitive integration appliances, such as Cast Iron's Application Router. "Cast Iron doesn't have the XML security or acceleration. In terms of the integration, it's built around preconfigured adapters that you combine into workflow rather than doing direct translation like we do."

With a price that starts at around US$50,000 including visual tools for a single developer, XI50 is being positioned as a secure way to expose mainframes and other proprietary data systems to broader enterprise applications, Kuznetsov said. "Our customers, mainly financial institutions and large insurance companies, are using [our products] to expose their systems to a wider array of risks, and they want access control and auditability to be built in at that point. They don't want to code their own security or put in a separate security solution." ▮

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Enterprises Wait and See on New Development Tools

◂ continued from page 1

The tools are coming. But will there be takers? Maybe not many.

"Those types of tools are far off for us," said James McGovern, enterprise architect with The Hartford Financial Services Group Inc. "Our main priority is integration."

"There are an awful lot programmers out there who still want to use vi," said Tom Purcell, enterprise architect with Chariot Solutions LLC, of Ft. Washington, Penn.

The problem is that visual tools have typically not provided enough round-trip consistency, Purcell said. "Tools would stick tags in code so that if you wound up editing outside the tool, you would break something," he said.

Hartford's McGovern said, "Any organization that did [use application builders] now would have lots of short-term successes but would have long-term architectural problems."

TARGETING THE UNSKILLED

Sun, with its Java Studio Creator, and Microsoft, with Visual Studio Team System, are aiming down the skill-level pyramid, where they hope to find a new audience beyond those highly trained developers that use their existing IDEs. In addition, these new tools are being marketed toward departmental applications where the creators would not have to go through IT, and to smaller organizations, which are less likely to have skilled programmers.

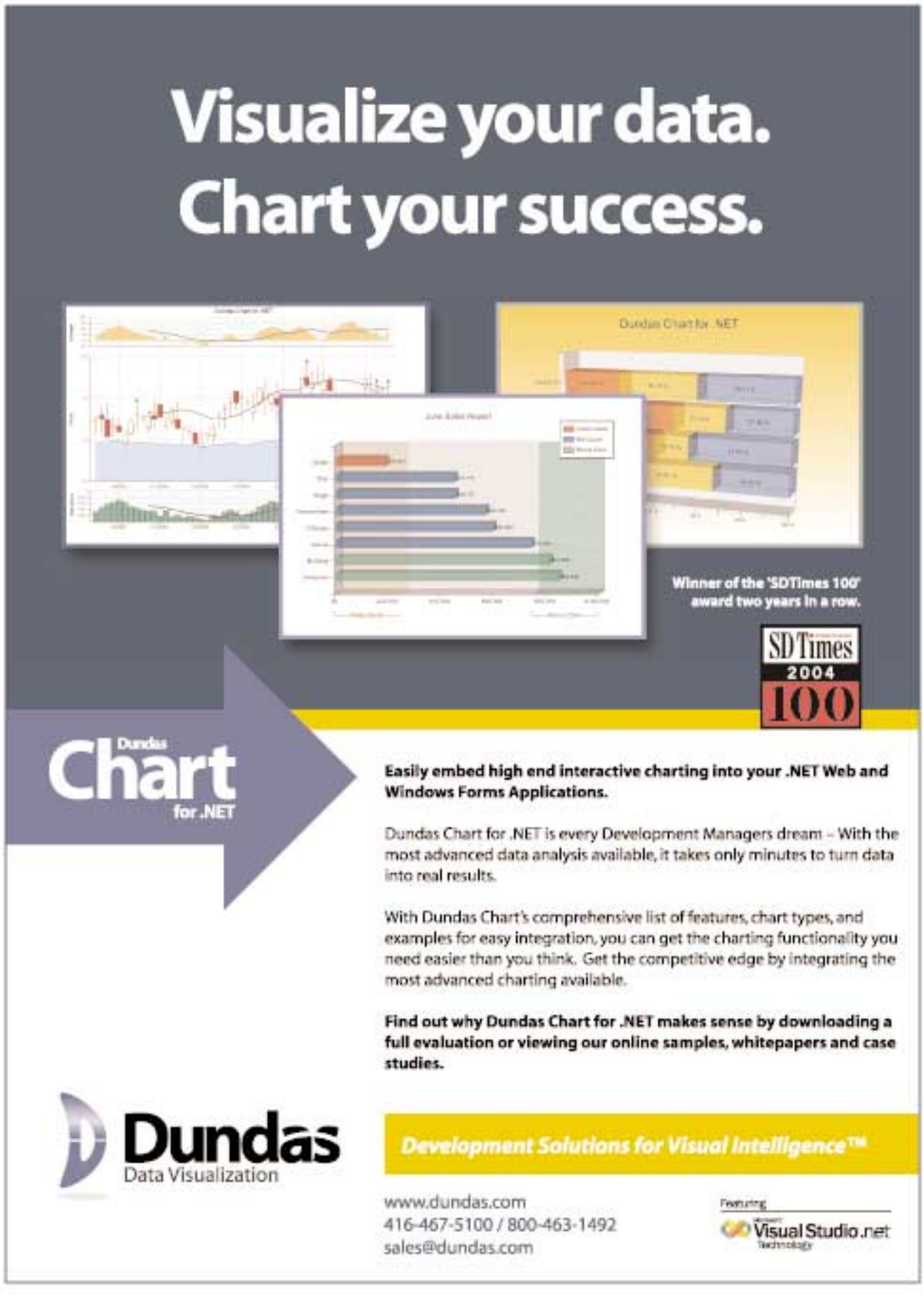
"They're trying to appeal and get everyone to be a programmer," said Bill Bates, senior software analyst at transportation company C.H. Robinson Worldwide Inc., of Eden Prairie, Minn., who added that he doesn't think software development will expand beyond the base of trained programmers.

Hartford's McGovern said he heard the promise that programming tools would be available to the casual user 20 years ago, and so he's skeptical that these new ones will fulfill the promise. More important, he added, the need was to look at integration more than quickly building software.

"I don't necessarily think enterprises have a problem with how to create software; they have a problem with what to do with what they already have," said McGovern. "People need tools that help them consolidate, not necessarily that help them build faster." He estimated that his organization spent only a quarter of its time building the actual code, and that the rest of the time was spent architecting, optimizing and integrating software with software it already has.

"I think [visual software] is useful for enterprises that don't build incrementally but want to do wholesale replacement,' he said, adding that such organizations were extremely rare. "The notion of a departmental application no longer makes sense in most scenarios. No one is interested in building siloed applications anymore."

Chariot Solutions' Purcell said he would welcome the introduction of easier tools, but that that only made the overall design and systems view more important. "If you can get productive work out of a lower skill level, that's a good thing," he said. ▮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Cem Kaner is a professor of software engineering at the Florida Institute of Technology and director of Florida Tech's Center for Software Testing Education & Research. Based in Silicon Valley before joining Florida Tech, Kaner worked as a programmer, human factors analyst, software development manager, tester, test manager, writer, technical publications manager, independent consultant and attorney focused on the law of software quality. Kaner decided to shift to university teaching in 1999 in order to develop a curriculum for software testing. His belief then was (and still is) that the set of knowledge and skills needed to do competent testing has been evolving rapidly, and needs strong educational support.

He has been senior author of three books on software testing and quality: Lessons Learned in Software Testing (with James Bach and Bret Pettichord), Testing Computer Software (2nd edition, with Jack Falk and Hung Q. Nguyen), and Bad Software: What to Do When Software Fails (with David Pels).

REX BLACK

A 20-year software and systems engineering veteran, Rex Black is president and principal consultant of RBCS Inc., a leader in software, hardware and systems testing. He wrote Managing the Testing Process, now in its 2nd edition, which has sold more than 17,000 copies. His latest book, Critical Testing Processes, was published at the end of 2003 by Addison-Wesley. He has written numerous articles, presented papers and given keynote speeches at conferences and events around the world.

ROBERT C. MARTIN

Robert C. Martin has been a software professional since 1970. He is CEO and founder of Object Mentor Inc., a training, mentoring and consulting company specializing in process improvement and object-oriented software design. He is the author or co-author of six books, including Extreme Programming in Practice (Addison-Wesley), and Agile Software Development: Principles, Patterns, and Practices (Prentice Hall). Martin was the editor-in-chief of the C++ Report from 1996 to 1999, has published dozens of articles in various trade journals, and is a regular speaker at international conferences and trade shows. He also served as the first chairman of the Agile Alliance.

ELFRIEDE DUSTIN

Elfriede Dustin is author of the book Effective Software Testing and lead author of the books Automated Software Testing (Addison-Wesley), and Quality Web Testing (Addison-Wesley). Dustin has a BS in computer science and over 10 years of IT experience. She currently works as the manager, SQA Engineering for Managed Security Services (MSS), at Symantec Corp.

HUNG Q. NGUYEN

Hung Q. Nguyen is CEO and founder of LogiGear Corp., a software quality engineering firm offering training, testing services and test-automation products. Nguyen is author and co-author of several software testing books, including Testing Applications on the Web (2nd edition, Wiley), and the best-selling book Testing Computer Software (2nd edition, Wiley). He authors and teaches software testing curriculum for LogiGear University, and the UC Berkeley and UC Santa Cruz Extension. He holds a BS in quality assurance from Cogswell Polytechnical College, is a graduate of a Stanford Graduate School of Business Executive Program, and a Certified Quality Engineer (by the American Society for Quality).

AccuRev CM System Introduces Change Packages

Bridge between defect-tracking, change-management tools among updates

BY DAVID RUBINSTEIN

Change packages that create a bidirectional bridge between issue-tracking and change-management systems are among the new features of the latest version of the AccuRev Inc.'s CM system that was announced in mid-August.

In AccuRev's system, the basic object used to track issues and changes is a stream, with built-in inheritance and an understanding of relationships. This performs better than other systems that use files, according to Brad Hat, AccuRev's director of product management, because files create a lot of dependent pieces to keep track of and don't scale well in large, diverse development environments.

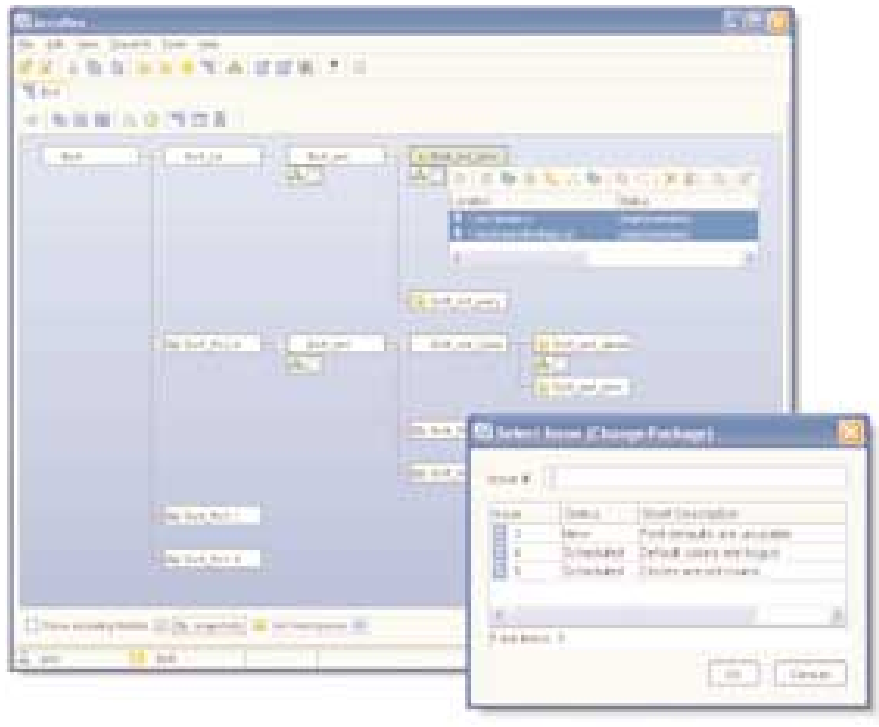
Managers would rather deal with changes than files, says AccuRev's Hart.

A stream can be a version of a project, for example, with individual workspaces for developers branching off that, which all can be seen graphically in the system's StreamBrowser, he explained. "In the stream architecture, the advantages are that a developer can go in and create a private workspace, and it'll back up all the files automatically and generate the hierarchy in a visual form with all the relationships."

The newly added change package, Hart said, is a high-level object associated with an issue request and linked to the change management system by the files and versions it contains. Release managers and project managers "would rather deal with changes, not files," Hart said, when it comes to keeping track of issues from project to project or development team to team.

In version 3.5, which sells for US$1,495 per named user, a new include/exclude function helps users filter data or add rules upon creating a workspace. "When there are 200,000 or 300,000 files in a repository, you don't want to bring them down to your desktop if you're working on the GUI," Hart said. The history of rules can be saved and versioned within the stream history, he added.

The StreamBrowser's interface has been made more intuitive, and AccuRev 3.5 now ships with adapters for the Eclipse framework and Sun's NetBeans open-source development framework, Hart said. "In Java, where a tremendous amount of refactoring goes on, we handle namespace versioning to deal with that," he said. Earlier versions already supported Microsoft's Visual Studio .NET. ▮



The change package helps ensure that issue requests get linked to the proper stream object.

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Active Endpoints Has Open-Source BPEL

BY YVONNE L. LEE

Active Endpoints Inc., a start-up specializing in building software for creating Web services, has released an open-source Business Process Execution Language (BPEL) engine, and has spun off a separate division that will oversee the open development of its software.

The division, ActiveBPEL LLC, will have a separate staff and its own Web site, said Fred Holahan, president and founder of Active Endpoints. The site, www.activebpel.org, will provide a way to distribute the software and will include community features for getting support and asking questions.

"We released the code to foster as much experimentation around BPEL as we can," he said. "An important ingredient to our success going forward will be the success of BPEL. The reason primarily is we really believe if BPEL succeeds that will give us the opportunity to create follow-on technology."

"Our reaction is that we welcome it," said Rob Cheng, director of developer marketing for Oracle Corp. "We believe this is only going to foster BPEL adoption. We already have seen that there's a great deal of momentum around this standard."

Oracle is a member of OASIS' BPEL technical committee, but is not an ActiveBPEL partner.

Cheng compared BPEL to how the HTTP protocol standardized a simple method for identifying objects on a network. "What the BPEL spec gives is a way to combine those individual services in a standard way. It's the 'Java' of SOA; it gives you that portability." ▮

MVALENT UPDATES MIGRATION TOOL

BY JENNIFER DEJONG

Helping developers and administrators manage application server migrations, mValent Inc. updated its Infrastructure Automation Suite in late July.

The tool automates the migration of configuration files between the old and new versions of application servers such as BEA Inc.'s WebLogic and IBM Corp.'s WebSphere, said Andrew Bird, vice president of business development at the Burlington, Mass., company.

On average, a Web application has five or six tiers, requiring multiple configuration files that point down to the database, the hardware and other components the application relies on, he said. The pain point of writing these files by hand is significant, and the process of managing them is error-prone, he added.

Infrastructure Automation Suite, which starts at US$50,000 for five seats, is essentially a data repository in which a company can store all of the configuration files associated with a company's Web applications.

New to version 2.2 are wizards for WebSphere and WebLogic that guide administrators through the process of creating the configuration files. For example, using a template, an administrator can define WebLogic 7.0-specific configuration files in the enabler and then customize them to match the environment, said Bird. The templates can be reused. As companies bring additional application servers online, the enablers automatically verify that all parameters are in line with those originally specified, he said.

The product also supports the Oracle and JBoss application servers, but the process for creating configuration files for them is not as automated as it is for WebLogic and WebSphere, according to Bird. ▮

Apache Maven: Move Over, Ant?

BY JENNIFER DEJONG

Taking a different direction than with its Ant project, the Apache Software Foundation released Maven 1.0 last month. Like Apache's Ant tool, Maven is designed to ease the Java build process. "But Maven and Ant are different animals," said Maven project lead Jason van Zyl.

Because Maven is based on a Project Object Model (POM) that describes a project's directory structure, JAR file dependencies and project management details in an XML file, it frees developers from having to create and maintain complex Ant scripts. "The POM concept simply doesn't exist in Ant," said van Zyl.

Maven, available at maven.apache.org, also provides a set of reporting tools to help manage projects more effectively. They enable developers to automatically generate information such as source metrics, dependency lists, software development documentation and change logs, van Zyl said.

van Zyl's team is currently working on Maven 2.0 and plans to release an alpha version within the next two months. The new version will support transitive dependencies.

In addition, Maven 2.0 will be integrated into IntelliJ IDEA, from JetBrains. Future versions are expected to work with Borland's JBuilder and Sun's NetBeans. The only way a developer can embed Maven 1.0 into an IDE is to use it at the command line, van Zyl said. ▮

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Rich-Client Experience for Java Server Apps

Start-up NextApp echoes other companies in praising move from page-based model

BY DAVID RUBINSTEIN

Rich Web applications, driven by an open-source Java framework: That's the model used by NextApp Inc. for its new rapid application development tool.

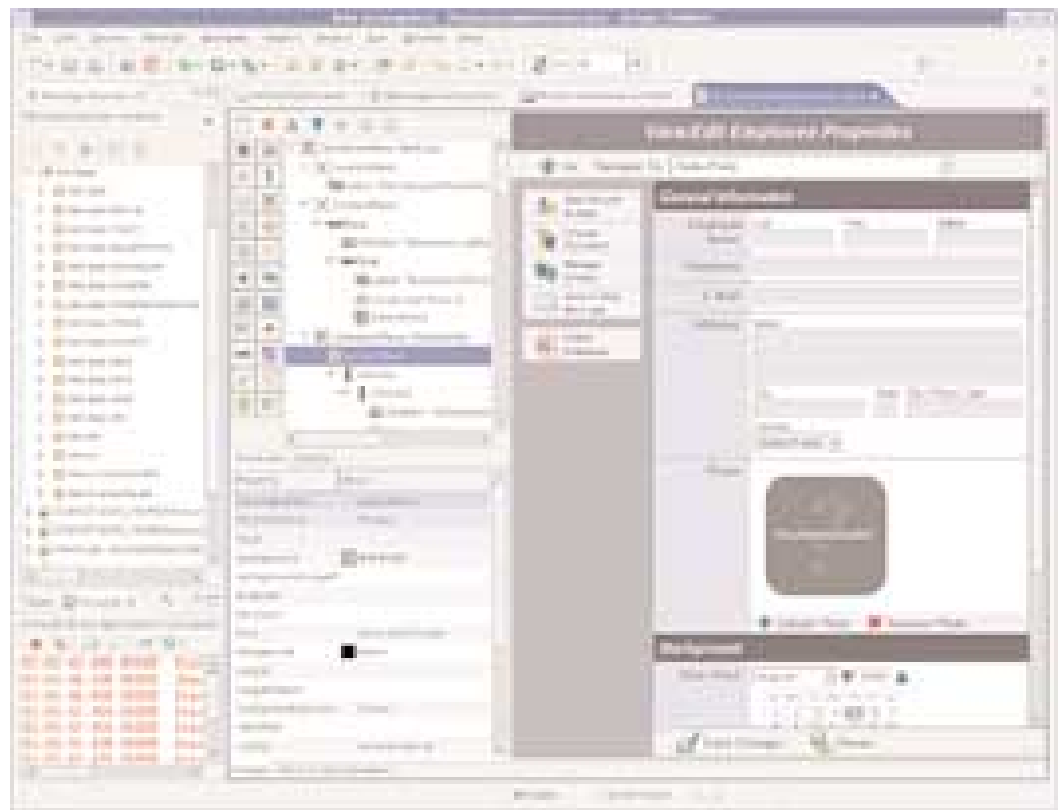
EchoStudio, released in late July, includes a form wizard and editor for the creation of event-driven user interfaces for internal, browser-based applications such as back-office applications, said Tod Liebeck, chief software architect of NextApp. It also comes with a visual style sheet editor for defining the application's look and feel, he said.

EchoStudio was built atop and ships with the Echo Framework version 1.1, which is the company's server-side framework that translates client requests into events the application responds to programmatically, and renders HTML to display the result back to the client, Liebeck explained. NextApp is offering the framework via an open-source license; the project is hosted at SourceForge.

"We're moving away from the page-based perspective of Web app development, which is great for viewing documents," Liebeck said. "When you start getting into apps, with forms and validation, the page-based model breaks down." He cited as an example an application that, if the user's entries into a form are correct, will take you to the next screen, but must return a new window and highlight the incorrect fields if the entries are in error.

EchoStudio can be used as a stand-alone development environment or as a plug-in for the Eclipse 3.0 framework. The US$349 tool runs on Linux and Windows; the Echo Framework requires Java 1.4.

NextApp is a privately funded company founded in January 2002. The Echo Framework version 1.1 was released in August. ■



EchoStudio's form editor enables the creation of event-driven user interfaces for internal, browser-based apps.

BEA Loses Key Thought Leaders

◂ continued from page 1

dent and general manager of Unicenter solutions, to be executive vice president of products.

In addition, BEA subsumed sales, services and marketing into a new unit called Worldwide Field Organization. Tom Ashburn, who had been president of the worldwide services division, will head up the new organization.

"I think as a matter of policy, I can't discuss individual situations," said CEO Alfred Chuang, at the company's earnings announcement. "Scott Dietzen, a very good friend of mine, has decided to take some time off. It's a loss, but we'll get through it. There may be some further changes. We have taken those into account in our plans. This is a very strong company."

But Meta Group Inc.'s lead analyst, Janelle Hill, said the loss of two of the industry's best-known thought leaders causes concern, though not alarm. "What hurts them more is the complete shuffling at the top, combined with not a great quarter," she said. "It creates a situation that might prompt someone to consider acquiring them. Oracle's been talking about buying BEA for a long time now. HP also might like to buy BEA. It makes the company appear to be unstable. That should give people a little bit of a concern. It certainly has no impact on customers who are looking at the products. It really only raises the concern of company viability."

Although Carges is coming out of a sales position, he has a long-standing technical background, said Kevin Faulkner, vice president of investor relations. "He's part of the original Tuxedo development team, going back to AT&T Bell Labs," he said. "He's a developer by history and by training." However, Carges' direct product development experience is not recent.

"Does BEA want to tilt their executive organization toward sales?" said Clay Ryder, executive vice president of the Sageza Group. "It would be somewhat of an interesting selection [otherwise]."

Both Bosworth and Dietzen joined BEA through acquisition. Bosworth co-founded Crossgain, which BEA bought in 2001. Dietzen came to BEA with the acquisition of WebLogic in 1998. BEA was founded in 1995.

BEA is a company in transition, said Ron Schmelzer, senior analyst at ZapThink LLC. "They're trying to go up in the organization," he said. "They really want to start selling the product more strategically. In order to do that, they have to expand their product vision. It's not just about J2EE anymore. That means interacting with systems that they didn't have to interact with before."

That's why BEA has recently been emphasizing service-oriented architectures, including its enterprise service bus Project Alchemy and Quicksilver, a browser for disconnected users, he said.

Bosworth had championed those products, but Faulkner maintains they continue to be a priority in the company. He also said the company was not moving away from development to sales.

"That is still our priority. We've adopted a smaller set of priorities than people wanted us to," Faulkner said, but declined to state whether Dietzen and Bosworth wanted this wider set of priorities. Neither Bosworth nor Dietzen could be reached for comment on this story. ■

Eclipse Gets Web-Ready

◂ continued from page 1

accessing databases, as well as XML and HTML editors.

Although the Lomboz and IBM contributions (www.eclipse.org/webtools) can be downloaded and used by developers, the aim of the WTP extends well beyond offering free Web development tools to end users. The goal is to bolster the Eclipse framework with previously lacking Web capabilities, so that commercial developers can build vendor-specific Web development tools based on the platform. "The project will provide commercial vendors with a common infrastructure on which to build Web tooling," said Jochen Krause, founder and president of Innoopract Informationssysteme GmbH, in Karlsruhe, Germany. "Eclipse has lacked tool support for Web development until now." Krause is working with ObjectWeb, IBM and the WTP's dozen or so other members to define the requirements for the WTP.

The project has been broken down into two subprojects: Web Standard Tools, for the development of three-tier (presentation, business and data logic) applications; and J2EE Standard Tools, for developing, deploying, testing and debugging J2EE applications on JCP-compliant server environments. Krause said he expects the project to reach at least one milestone by year's end. He did not say what that would include, but he noted that members involved in defining the WTP's requirements are focusing heavily on the need for JSP editing and debugging tools.

Judging by at least one posting on www.theserverside.com, the tools are likely to be well received. "I have been waiting for this for ages," wrote Cav Edwards on July 23. "I cannot find any tooling for home use [free] for EJB development. Maybe it will be here at last." ■

Linux wish list
100 times faster worst-case response time
20 times smaller footprint
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20% faster code
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Green Hills Tunes Up Integrity, Velosity

New versions boot faster and run, debug on multiprocessor systems

BY EDWARD J. CORREIA

Subsecond boot times, more flexible error-handling and the ability to run and visually debug on multiprocessor systems are among the enhancements to version 5 of both Integrity and Velosity, Green Hills Software Inc.'s real-time operating system and kernel on which it is based. Pricing remains unchanged, starting at US$15,000 and $9,500.

"Fast boot times are really important if you're talking about certain medical equipment, automotive and avionics systems," said David Kleidermacher, vice president of engineering at Green Hills, boasting times as short as 15 milliseconds. "We can now delay initialization of noncritical parts of the system so you can get up and running with certain critical applications; the rest of the system can initialize later," he explained. "With Linux, you're waiting many seconds, and with Windows, even minutes."

Velosity and Integrity also now support systems with as many as four processors sharing memory and peripherals. Kleidermacher said this makes the operating system more suitable for avionics and other processor-intensive applications.

Perhaps more significantly, Green Hills has added multiprocessor support to EventAnalyzer, its real-time visual debugging tool, which Kleidermacher said now can display events from multiple processors simultaneously. Previously, the tool could display events from only a single processor at a time. "In a multiprocessor system, processors are communicating with each other, so you really need to see streams of data from all the processors correlated on the same time line."

Previously, developers would generate event data from multiple processors and line up the events manually, Kleidermacher said. "It was really hard to correlate the events together. Now all the tasks in a multiprocessor system are time-correlated and shown graphically in the same window."

As an aid to porting from other RTOSes, Green Hills has added message queues, mailboxes and event flag communications mechanisms to Integrity, none of which had existed in the POSIX-compliant operating system. "A lot of real-time kernels use those concepts. So if you're moving from another real-time kernel to Integrity and you use mailboxes in your code, this allows you to port more easily," said Kleidermacher. An unintended benefit to existing Integrity developers, he added, is more choices when implementing intertask communications.

Error-handling also is enhanced; code can now generate exceptions and hand their return values to a system handler that will handle API errors across the entire application. "This makes it easier to handle errors and makes your code more readable," he said, adding that errors also can still be handled locally when needed. "Other operating systems have either local or system handling, but not both, which is unique." ▮

Eldos: Similar to NTFS Without Royalties

Solid File System 2.0 now secures embedded devices, crosses platforms

BY EDWARD J. CORREIA

Claiming to offer stability and features on par with NTFS at far lower cost, Eldos Corp. has released Solid File System 2.0, an embedded edition of its virtual file system for Linux and Windows.

"One doesn't need to pay royalties to Microsoft," said Eugene Mayevski, CTO of Eldos, based in Kiev, Ukraine. "An embedded developer can take our reference design and quickly build an embedded device with a file system that supports serious features," including journaling and built-in encryption and compression.

According to Mayevski, the Solid File System protects data integrity on embedded systems by storing all of a device's individual files as a single file, either in the device's native file system, in a block of memory or as a database record, thereby preventing damage to files due to changes by users or applications.

Mayevski said the reference code, which works with Big and Little Endian systems, is delivered as libraries for Linux, .NET, Palm OS, Pocket PC, Unix or Windows development environments; pricing ranges between US$5,000 and $10,000, including source code and unlimited usage rights.

For developers building embedded systems using Linux or a home-grown RTOS, "they can take our engine and start using it now," he said. For those targeting commercial RTOSes, a kernel driver for Pocket PC is available now at additional cost; drivers for Palm OS and Windows NT are set for September release, he said.

Mayevski said developers familiar with file operations of Windows or Linux systems should have no trouble adapting to the Solid API. "Developers can start using Solid File System hours after studying the API documentation and sample code."

Why pay for a file system when so many can be had for free? Mayevski said there are multiple reasons. "Many developers prefer a supported solution. Linux file systems don't have drivers for Windows NT, Windows 98 and Pocket PC, so if the embedded developer needs portability between devices and desktop computers, they will have difficulties using Linux file systems. Our goal is to make it compatible with all kinds of devices."

He said next on the list will be to develop a consumer tool to allow formatting of Flash and Secure Digital cards using the Solid File System for secure data storage. ▮

SQL Anywhere Gets the Message

New QAnywhere API lets mobile database apps communicate via JMS

BY EDWARD J. CORREIA

Message received. Sybase Inc. subsidiary iAnywhere Solutions Inc. has added messaging to SQL Anywhere Studio, reacting to customer requests that its enterprise data synchronization solution permit data-driven applications to communicate with back-end systems using the Java Message Service.

"Customers were saying it would be nice if their mobile applications could also exchange information with other back-end systems," said Roger Kehl, a senior product manager at iAnywhere.

To that end, the company has introduced QAnywhere, a JMS-compliant API and add-on to its MobiLink synchronization server that allows it also to function as a store-and-forward message server. "The API should be very familiar to anyone who has used Java Message Service, MQSeries or TIBCO," Kehl said. Compatible message servers also include WebLogic and WebSphere, he added.

Apps can swap data with little new programming, says iAnywhere's Kehl.

"Developers will be able to exchange information with back-end systems without doing a lot of programming," he claimed. "There's no additional programming on the server side to manipulate that data. The message goes from the device to the back-end system and from the enterprise to the mobile device."

The functionality is included in SQL Anywhere Studio 9.0.1, the company's free Windows-based development environment for C++ and .NET that targets Windows and Pocket PC. Deployment license pricing starts at US$209 per database client with messaging, and $149 without.

In addition to specifying methods of creating, prioritizing and queuing messages, the API defines rules for governing transmissions, including parameters based on the speed of the network or the size of your data file, Kehl said. "You might specify to only send high-priority messages over a wireless network," for example. Message-data options include compression, push and encryption. "Messages can be encrypted while on the device and while they are being transmitted."

Kehl said the solution is targeted mainly at field-service, delivery and logistics industries, in which workers typically use a data-driven mobile application for inventory and a separate, message-based system for order entry. "Previously, they would go into a depot and synchronize data from the back end to the device and go out and use that data during the day." And while database synchronization could take place over wireless networks, order entry would have to wait for a return to the depot. Now both can be done from the field using the same back-end infrastructure. SQL Anywhere Studio 9.0.1 began shipping in April but was not widely announced until August. ▮

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Back-to-School Reading List

A plethora of tomes to burden your briefcase

It's September. The heat of summer is fading, the leaves are thinking about turning red, orange, yellow and brown. Children's gazes move from the happy playgrounds to the stolid brick of Public School 53, as their bicycles are traded in for yellow-and-black buses. It's time to crack the books.

Too often, development managers focus their training efforts on their staff: buying the latest materials on ASP.NET, a tutorial on JavaServer Faces, some tickets to a conference program, arranging for in-house classes on data modeling. But what about you and your fellow managers? To help challenge your thoughts and refresh your imagination, we've assembled a reading list for the next school year. This year's choices emphasize the classics (translated from the original Latin for your convenience), but we've thrown in a few new titles from new authors representing new thinking.

Warm up your coffee, take a seat. Open your book to Chapter 1. Let the lessons begin.

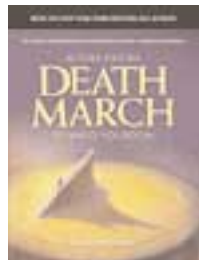
BOOKS YOU'LL GIVE AWAY... AGAIN AND AGAIN

The best books on software development are those that pass three tests: You've read them. You've recommended them to others. And you've either bought copies for other people, or you've given away your own copy—and replaced it.

"The Mythical Man-Month: Essays on Software Engineering" passes those tests with ease. I've lost track of how many copies of Fred Brooks Jr.'s classic I've given away. In fact, while writing this review, it seems my newly purchased "20th Anniversary Edition" can no longer be found—it's time to add it to my Amazon.com shopping cart. Again.

Many of the lessons that Brooks discusses in this book may seemed dated—they relate, after all, to his experiences developing OS/360, the operating system for the IBM System/360 mainframe. But perhaps because they're distant from today's domain of Java and .NET, massively distributed *n*-tiered architectures and modern concepts like object-oriented programming and XML, the book's lessons about the development process have greater value.

Brooks' discussions about system constraints may seem quaint, but his discussions of team management, systems design and requirements management are evergreen, as are his warnings about the dangers of seeking silver bullets to magically solve complex problems. It's amazing how well "Mythical Man-Month" has stood the test of time—so well, in fact, that there's little new in the second edition that makes for a compelling upgrade.



"Death March," by Ed Yourdon, is another classic whose title and central thesis have passed into ordinary speech. How can you tell when a project is doomed? What can you do when you're asked to salvage that project? In this era when every new piece of software must be written yesterday, and integration projects are stacked up like aircraft circling O'Hare, some days it seems that ordinary tasks are becoming death-march assignments. Unfortunately, Yourdon spends a lot of time describing such projects, but not enough time advising you what to do about them, other than quitting them. Still, if your tasks are large or viewed as "mission critical," read this book. If you haven't looked at it for a while, pick up the newly published second edition and read it again.

Another book I've given away more times than I can count is "Object Technology: A Manager's Guide." David Taylor's slender volume is arguably the best OO guide for nondevelopers—or for those whose hands-on coding days are stuck in the structured-programming era. If you frequently find yourself explaining the differences between encapsulation and polymorphism, this book might save you some time at the whiteboard; his style also should serve as a model for aspiring documentation writers.

Many titles on my bookshelf have passed two of the three tests: I've read and recommended them, but haven't been inspired to share my copies with others. Yourdon's 1993 title, "Decline and Fall of the American Programmer," and the 1997 sequel, "Rise and Resurrection of the American Programmer," are both thoughtful works that touch on many aspects of our jobs today. If you don't own these volumes, don't bother purchasing the older one, but do pick up "Rise and Resurrection" and read it on the train.

The Pragmatic Bookshelf series by Andy Hunt and Dave Thomas are easy-to-read, slim volumes to read once and then route amongst your team. Well, some of them, anyway: While I can strongly recommend "The Pragmatic Programmer: From Journeyman to Master," I've not been inspired to read, "Programming Ruby: The Pragmatic Programmer's Guide."

In the "read at the beach if you're a total nerd" category, "Physics for Game Developers" is a fascinating look behind the pixels and bloodshed of today's realistic shoot-'em-ups. Not only does David M. Bourg explain what it takes to make the motion of 2D and 3D objects seem lifelike, but it will also give readers a better appreciation of the real world, and for the difficulty involved in designing complex simulations.

–Alan Zeichick

A PRAGMATIC READING LIST

Mike Clark's "Pragmatic Project Automation: How to Build, Deploy, and Monitor Java Applications" straddles the line between programmers and development managers. Like the other titles in the Pragmatic Bookshelf series, it provides a solid overview of basic programming activities and liberally sprinkles these explanations with code and project samples.

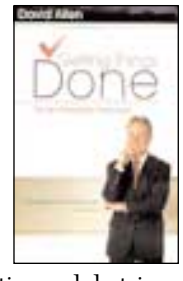
This book helps managers who are not quite sure they understand what

project automation is and how it's made to work. It explains the concepts in a simple, approachable style that makes clear the salient points. If managers want to drill deeper into the topic, they can read the specific examples. If not, they can move on to the next chapter and read its introductory material.

This particular volume explains how to use automation to build, deploy and monitor Java applications. It does so using the most common tools for each of these activities and discusses how these tools implement the basic principles of the particular activity. So, managers who don't feel comfortable that they understand the concepts of project automation need no longer feel insecure in meetings; after a few hours of reading this book, they will know the concepts, the issues and the tools.

A companion volume, "Pragmatic Unit Testing in Java with JUnit," by Andrew Hunt and David Thomas, treats test-driven development and unit testing in Java with the same elegant explanation.

In "Getting Things Done: The Art of Stress-Free Productivity" David Allen discusses one of the most common problems plaguing managers today: time management.



Time is always too short, the number of tasks—especially small ones—is far too great, and the ability to prioritize and do triage is limited. The result is suboptimal time usage coupled with constant stress from a sense of being behind.

Allen teaches how to put order into this chaos, such that tasks can be handled in a logical way and those that are abandoned are done so consciously, so that they do not haunt us as background to-do items. It is written for professionals, so it eschews the simplistic, formulaic recommendations in favor of techniques that are immediately recognizable and

▸ continued on page 32

◂ continued from page 31

usable. There is a large group of professionals who use David Allen's techniques, and most of them describe his approaches as "life changing," or as frequently, "I got my life back."

If you like this book, his companion volume, "Ready for Anything: 52 Productivity Principles for Work & Life," provides a series of bite-sized suggestions and tips to extend time management techniques from "Getting Things Done." You won't regret the time spent on reading this slim volume.

–Andrew Binstock

A LOOK AT LINUS, JUST FOR FUN

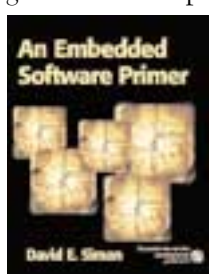
Despite being written by someone who feels "qualified to joke with reporters about knowing what scum they are," "Just for Fun: The Story of an Accidental Revolutionary," by Linus Torvalds and David Diamond, puts the Linux phenomenon into perspective.

Linux has found its way into not just the servers and desktops for which it was originally intended, but also into devices as diverse as audio equipment, cameras and wristwatches.

But just how did Linux get started? The story, as told by Torvalds himself, is all here, including his birth in Finland, his childhood ("envision large front teeth…a complete lack of taste in clothes…coupled with the traditional oversized Torvalds nose"), and learning BASIC programming at age 11 on the lap of his grandfather using a Commodore VIC-20.

"Just for Fun" is a lighthearted, nontechnical look at the events that led up to the creation of the Linux operating system and how Torvalds began to build an army of developers to build it with him. Will it help your team finish their current projects on time? Probably not. But it will give you a much better understanding of the brilliant mind of an industry luminary.

A more compelling work for development managers—especially those working on embedded systems—is "An Embedded Software Primer," by David E. Simon. After you've read this book, you'll have an excellent understanding of how real-time embedded systems work, how they are developed and how their designers may have come to select the architecture on which they are based.



No technical expertise is required. This book assumes little more than a basic understanding of C-language programming, by far the predominant language used in embedded systems. Starting with the fundamentals of hardware system design, Simon presents a straightforward tutorial of embedded systems development, including the role played by microprocessors, buses, interrupts and memory.

Also clearly illustrated are the four basic system architectures: round-robin, round-robin with interrupts, function-queue-scheduling and real-time, each with real-world examples of the common usages. Also included are many sample source-code snippets—both good and bad—to help illustrate functionality and demonstrate bugs.

For those interested in putting their new skills into practice, "An Embedded Software Primer" is accompanied by a CD containing a noncommercial license for µC/OS, a real-time operating system developed by Jean Labrosse.

–Edward J. Correia

GRASPING THE VALUE OF OO TECHNIQUES

One of the problems I encounter in teaching object-oriented techniques is that my students are often engineers, not managers.

Engineers often immediately grasp the value of the OO techniques they're learning, but despair of being able to get their companies to actually adopt an OO way of doing things. (Most organizations who think they're doing OO aren't.) Since existing support systems support old process, these systems must change if the process changes.

Consider what the head of QA is going to say when told that a new process requires testing to be integrated into the development, and that all of his testers will be reassigned to engineering teams. Not a pretty picture. By the same token, a hard-core procedural programmer who thinks he's doing OO simply because he's programming in Java will not take kindly to the notion that his programs are fundamentally incorrect from an OO perspective.

Everett M. Rogers' updated classic, "Diffusion of Innovations," Fifth Edition, deals with the problem of infusing new ideas into an existing organization. It explains where the resistance comes from and how to overcome it. This book is essential reading for anyone who plans to shake things up by introducing new ideas (like real OO Design or Agile methodologies) into a resistant environment (almost everywhere).

"Emergence: The Connected Lives of Ants, Brains, Cities, and Software," by Steven Johnson, is a layman's introduction

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to emergence. There are more precise academic treatments of the subject, but this book introduces the concepts in an entertaining and accessible way. It's a great way to get up to speed on the concepts and stretch your mind along the way.

Emergent behavior is behavior exhibited by an aggregate of some sort—an ant colony, an entire city, the objects that constitute an OO system—that can't be inferred by looking at the behavior (or programming) of the individuals (or objects) that make up the system.

A classic example of emergence in computer systems is John Conway's famous Game of Life. The game defines a universe made up of cells. Every time a clock ticks, each cell in the universe determines whether it's alive or dead by counting the number of neighbors who are alive and applying a very simple set of rules. The programming is straightforward, but when you start the game with certain very simple patterns and then set the clock going, the game as a whole shows remarkably complex and interesting behavior.

If you've never seen the Game of Life in action, there's a great description of the game, along with an applet implementation, at www.math.com/students/wonders/life/life.html.

This notion of emergence, that is, the behavior of a large system that is not explicitly programmed into that system, is fundamental to OO design. OO designers usually work from use cases, or tasks performed by an end user that have a useful outcome. The designers identify scenarios within a use case in which the activities that make up the task can play out, and then model those tasks in their program. Emergence comes into play when you realize that the program that you wrote can handle scenarios that you hadn't thought of (or programmed). That is, the program exhibits emergent behavior.

Stewart Brand's "The Clock of the Long Now: Time and Responsibility: The Ideas Behind the World's Slowest Computer" is a fascinating tour behind the scenes of the project to build a clock that will tell accurate time for 10,000 years. To give you some perspective, 10,000 years ago hunter-gatherers were just beginning to form communities, and the invention of pottery was still 3,000 years in the future. So, 10,000 years is a long time.

One of my fondest memories of a long-ago JavaOne was listening to supercomputer architect extraordinaire

Danny Hillis talk about the long-now project in one of the general sessions. His was a mind-bending talk that made you rethink your approach to lots of things, from engineering to life in general.

Building anything with this level of longevity is a remarkable engineering project, and the thinking that goes into a project of this sort should (but usually doesn't) infuse all engineering efforts. The programs we build now will probably have a longer lifetime than we imagine, and learning to think for the long haul is a skill worth acquiring.

Whether or not you think that this is a bunch of crackpots at work, the brainpower behind this project is formidable, and the concepts are fascinating.

–Allen Holub

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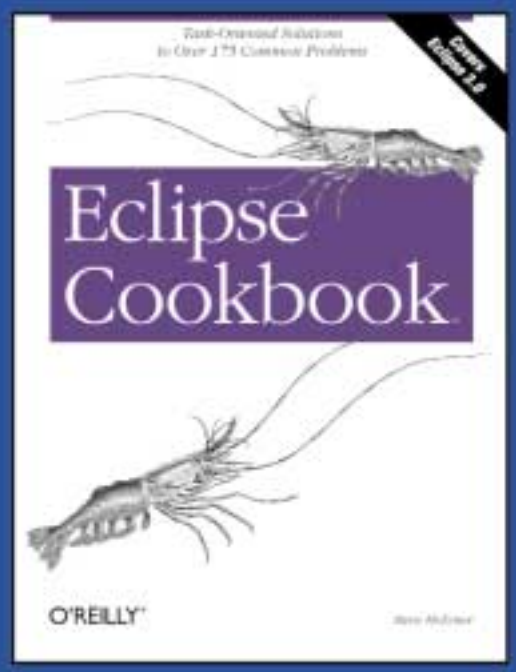
Intelligent Help



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REQUIRED READING

Agile Software Development Alistair Cockburn

The Clock of the Long Now: Time and Responsibility: The Ideas Behind the World's Slowest Computer Stewart Brand

Code Complete Second Edition, Steve McConnell

Death March Second Edition, Edward Yourdon

Decline and Fall of the American Programmer Edward Yourdon

Designing Object-Oriented Software
Rebecca Wirfs-Brock, Brian Wilkerson and Lauren Wiener

Diffusion of Innovations Fifth Edition, Everett M. Rogers

An Embedded Software Primer David E. Simon

Emergence: The Connected Lives of Ants, Brains, Cities, and Software Steven Johnson

Exploring Requirements: Quality Before Design
Donald C. Gause and Gerald M. Weinberg

Getting Things Done: The Art of Stress-Free Productivity
David Allen

Just for Fun: The Story of an Accidental Revolutionary
Linus Torvalds and David Diamond

The Mythical Man-Month: Essays on Software Engineering
Frederick P. Brooks Jr.

Object Technology: A Manager's Guide
Second Edition, David A. Taylor

Peopleware: Productive Projects and Teams Second Edition, Tom DeMarco and Timothy Lister

Physics for Game Developers
David M. Bourg

The Pragmatic Programmer: From Journeyman to Master
Andrew Hunt and David Thomas

Pragmatic Project Automation: How to Build, Deploy, and Monitor Java Applications Mike Clark

Pragmatic Unit Testing in Java with JUnit
Andrew Hunt and David Thomas

Ready for Anything: 52 Productivity Principles for Work & Life David Allen

Rise and Resurrection of the American Programmer
Edward Yourdon

Seven Years of Highly Defective People
Scott Adams

Software Assessments, Benchmarks, and Best Practices
Capers Jones

Software Requirements Second Edition, Karl E. Wieger

UML Distilled: A Brief Guide to the Standard Object Modeling Language Third Edition, Martin Fowler

Waltzing with Bears: Managing Risk on Software Projects
Tom DeMarco and Timothy Lister

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TAKE THOROUGH COMMAND

The job of technical management is to mediate between the needs of the company and the needs of the team—get the team the resources it needs to do a job; get the company the control and productivity it needs to deliver value to the customers. It's primarily a task of keeping people, if not happy, satisfied that everyone is working in alignment.

To my eye, managerial competence generally seems inversely related to the number of managerial fads pursued. I don't think you learn this stuff in a book; I don't think it's a matter of cheese, or goldfish or organizational matrices. It's certainly not a matter of sharp-focus posters touting "perseverance." (I mean, I've been on projects whose purpose really did seem to be "to serve as a warning to others.")

Having said that, a software project manager needs to have thorough command of certain techniques in both the software and managerial realm: requirements in the one and risk management in the other. These techniques bridge the two worlds.

Requirements specify what is desired

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◆ "Intuitive and austere ... a superb search tool" – PC World
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in enough detail that engineers can work; risk management specifies what is being done in enough detail that corporate commitments can be made. "Exploring Requirements: Quality Before Design" by Donald C. Gause and Gerald M. Weinberg, and Karl E. Wieger's "Software Requirements," Second Edition, say just about everything that needs to be said about formal requirements engineering. "Agile Software Development," by Alistair Cockburn, presents less formal agile techniques without the over-the-top rhetoric of the "extreme" manifestoes.

Agile techniques implicitly address risk management by dramatically shortening integration and release cycles, but I've yet to see a real company willing to accept a shuffled stack of index cards in lieu of a schedule.

"Waltzing with Bears: Managing Risk on Software Projects," by Tom DeMarco and Timothy Lister, covers the justification and issues of risk management without going into great depth on specific techniques. "Software Assessments, Benchmarks, and Best Practices," by Capers Jones, is vital for justifying the no-doubt-shocking dates and costs of your worst-case scenario. (His "Assessment and Control of Software Risks," was the best primer on the subject until "Waltzing with Bears" was released.)

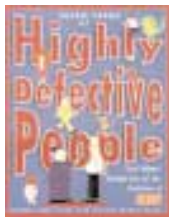
It's easier for programmers to develop an understanding of risk and project management techniques than it is for those with less technical backgrounds to understand modern software development techniques and platforms in enough detail to anticipate bear traps and pitfalls.

At the very least, you must be conversant in the Unified Modeling Language, the diagrammatic lingua franca of high-level technical discussion. "UML Distilled: A Brief Guide to the Standard Object Modeling Language," Third Edition, by Martin Fowler, is the best text that is easily digestible by nonprogrammers—it will give you the tools you need to understand your system without necessarily being able to turn out code. Even this book assumes a familiarity with object orientation, the paradigm that has come to absolutely dominate professional development.

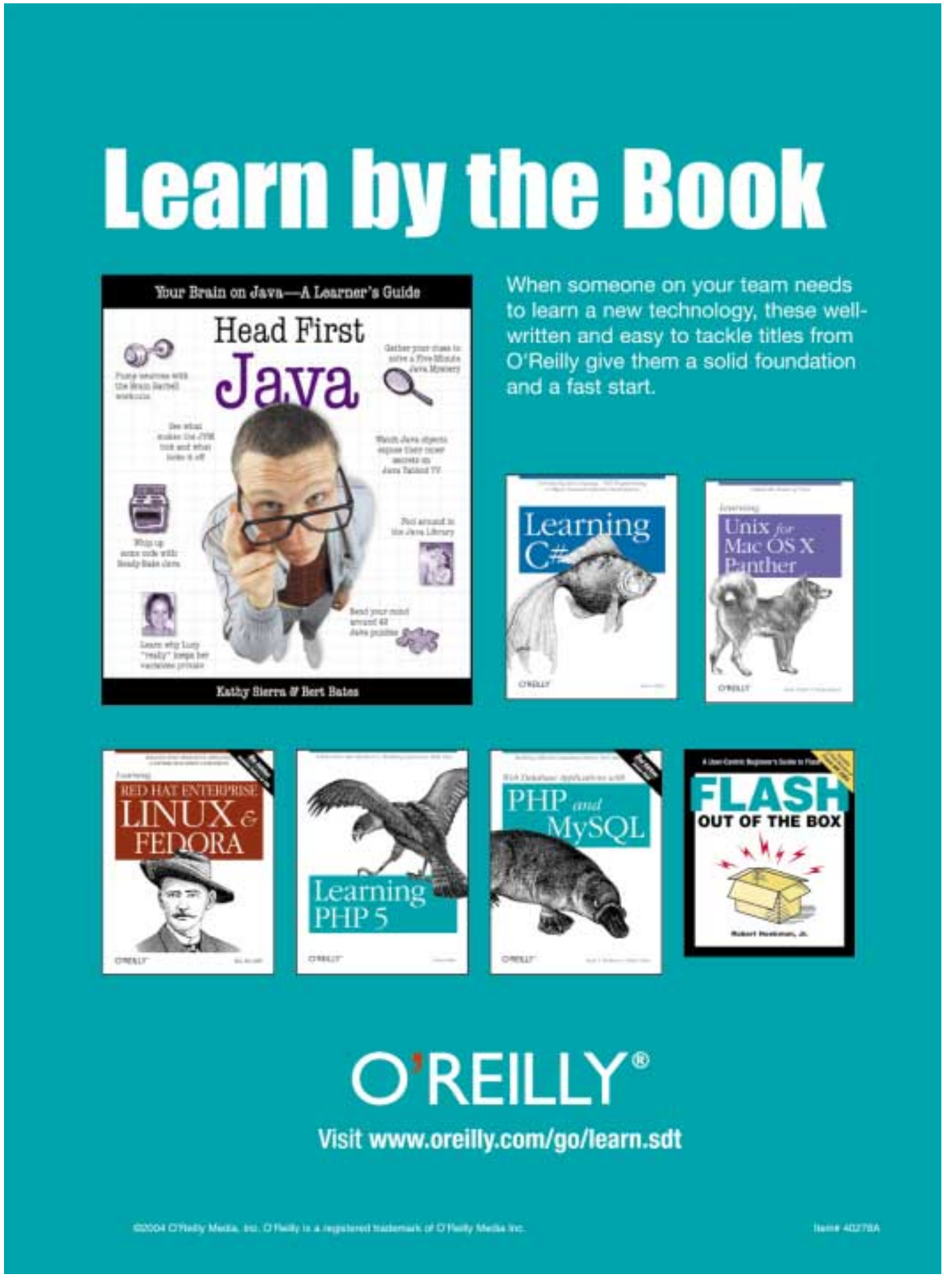
If you're not up to speed on OO, my favorite introductory text on object-oriented programming is "Designing Object-Oriented Software," by Rebecca Wirfs-Brock, Brian Wilkerson and Lauren Wiener. Originally published in 1990, it's quite long in the tooth, but it was written when objects were new to most programmers and makes few assumptions about the reader's background.

If your bookshelf doesn't have "Peopleware: Productive Projects and Teams," Second Edition, by Tom DeMarco and Timothy Lister, and Steve McConnell's "Code Complete," Second Edition, be sure to get those.

My last piece of advice is to read Scott Adams' "Seven Years of Highly Defective People." And remember, you are the pointy-haired boss. Don't act like that guy.



–Larry O'Brien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EDITORIAL

More Work To Be Done

Our world has changed in the decades since languages like CLU were on the cutting edge of computer science. Today, object-oriented programming is at the core of many platforms; whether it's C++ on Linux, C# on Windows or a Java app server, we're using the concepts pioneered by Barbara Liskov and her colleagues every day.

Yet there's more work to be done.

For example, the ever-growing complexity of modern distributed systems has made it difficult to be sure when a complex application is working correctly. Today, we try to ensure that our software works right by using requirements tools to decide what should be built, then using modeling tools to automatically generate the code. Finally, we rely upon testing tools to judge whether the application meets those requirements.

But that's a fuzzy art, not a science—the tools test only what they're configured to test. Bugs and performance bottlenecks can lurk in dark shadows cast by our modern-day IDEs, modelers, code generators, static analyzers, performance profilers, load testers and runtime flight recorders. The understanding and computer science doesn't yet exist to validate *correctness*. And the idea that an application represents the optimal solution to a specific problem—well, we're not even close. For that, we may need to wait another 30 years.

Back for Schooling

When you're behind schedule, over budget, or struggling with contradictory or impossible requirements, the last thing you want to think about is reading a book about managing software projects. Who has time for that? Not you.

Unfortunately, we're all behind schedule, all the time, 24x7. But we can't let that serve as an excuse for not keeping up with the latest technologies, or for broadening our perspectives. In a perfect world, we'd engage in serious networking with our peers over a leisurely lunch, or chat up an expert at a conference. For most software development managers in these overstressed times, those encounters are too rare, and too rushed, to broaden our minds. When it comes to picking up information, we've turned into grazers at a smorgasbord: a piece from this article, a bit from this Web site, a thought from an e-mail conversation.

But while technical buffets are fast and easy, they're not as intellectually satisfying as a full sit-down feast, where we can enjoy the entire train of thought that led a domain expert to advance the art of software development, and where he or she wants to share that experience with us. For that, there's no substitute for a good book.

This issue's Special Report is a back-to-school reading list. It's not an exhaustive examination of the best-selling titles, or those that offer the most comprehensive coverage of the latest buzzwords. We make no claims that these are the best software development books ever published, though we believe that you'll get out of them far more than you put into them; we certainly did. These books will get you thinking, and talking with your team, your peers and your colleagues. Isn't that the best way to learn? ▮

21 Rules of Thumb for Delivering

Jim McCarthy's "21 Rules" essay was originally written in 1994. The first part of this updated edition can be found in the Aug. 15 issue of SD Times.

6. Beware of a guy in a room. This is really just a special case of "Don't go dark." Specialist developers who lock themselves away in a room, going dark for long stretches, are anathema to delivering great software on time.

SECOND OF A THREE-PART SERIES

Without regard to their individual brilliance, before investing a developer with a significant assignment, it is essential that they understand and agree with the type of development program you intend to run. They must be capable of performing on a team, making their work visible in modest increments, and subjecting it to scrutiny as it matures. Some people find this intolerable, and though there is a role for people of this disposition in the software world, it is not as part of a team devoted to delivering great software on time.

There are many pathologies at play here as well as certain healthy patterns of creative behavior.

One pathology is a type of savior complex that cannot be satisfied without blowing every single deadline but the last, and then emerging victoriously with a brilliant piece of work five minutes late.

A healthier pattern is that of the true innovator who is truly designing something great, but who has no personal resources left over for anything but the work at hand. Every ounce of psychological, emotional and intellectual energy is being consumed in the work itself. Teamwork, in this case, is an insignificant factor to a person immersed in this sort of creative experience.

Jim McCarthy

But whether the cause is healthy or bogus, the results are uniformly fatal to the professional development organization. Beware. Extricating yourself from this trap is nearly impossible.

7. Never trade a bad date for an equally bad date. Generally, you know you're going to be late before you know when you're going to be done. Further, everybody on the team and everybody they come in contact with knows you're not going to hit the schedule. The pressure to reset the end date (or the milestone date) is enormous.

Even though your information is obviously better now than when you originally set your goal, it is probably insufficient to make a new schedule. This is because with each slip, you and your team are spending your credibility. It is essential that after a slip, the next milestone be hit. This is so that the team believes in its ability to manage the project, and that the reserves of credibility are rebuilt for later consumption.

It is difficult to say precisely and in all cases when you should "officially" slip. A good general rule is that the schedule should be reset when the total extent of the slip is known for each component, the causes of the slip are understood, and remedies are in place. Usually, this takes the effort of the entire team and its leadership, and must be an explicit, focused activity. After this level of work is achieved, create a new, closer and more conservative milestone that the team is very likely to hit, and promulgate that.

Avoid just sliding the schedule out. Your nearest milestone

Letters to the Editor

BEING PERSISTENT

I was disappointed in Allen Holub's "Java Still Struggles With Persistence" article [July 15, page 37, or at www.sdtimes.com/cols/javawatch_106.htm].

I recently presented on Java persistence layers at JavaOne, and to prepare for this presentation, I spent countless hours researching both JDO and Hibernate, among other persistence solutions. I have also used both JDO and Hibernate in software applications. I am by no means a persistence expert; however, I am definitely experienced in the realm.

Now, I am not even going to address the JDO issues that Mr. Holub briefly touched upon. His comments were most likely aimed at the 1.0.1 specification of the JDO standard, which has now been eclipsed by the in-review 2.0 release. There are some JDO implementations (both commercial and open-source) that have already implemented 2.0 features, many of which do not use bytecode manipulation (they instead use runtime reflection or implementation of interfaces, among other strategies).

As a proponent of versatility and a firm believer in using the right tool for the right problem, I tend to suggest different persistence layers for different types of applications. So, I am by no means "pro-Hibernate." However, when I read something that is incorrect, I feel I must respond:

"Hibernate's documentation is marginal." Hibernate has some of the most extensive documentation of any open-source project I've dealt with. FAQs, tuning tips, mailing lists, forums, even the documentation and JavaDocs themselves are quite thorough. Gavin King, the founder of the Hibernate project, is definitely a proponent for comprehensive documentation.

"As a designer, my main complaint about Hibernate is its use of the get/set idiom to tag the fields that need to be stored. Fortunately, Hibernate uses introspection rather than Java interfaces, so you can (and in fact, should) make the getters and setters private; I strongly recommend that you adopt a style guide that requires them to be private." Hibernate does not force you to use the get/set idiom to tag persisted fields. In fact, you have a few options here, including direct accessing of properties and the get/set idiom, as well as your own custom solution (via implementation of the net.sf.hibernate.property.PropertyAccessor interface).

Great Products on Time

should be extremely realistic, and uncertainties about later milestones will remain and should be highlighted.

8. When slipping, don't fall. Slipping is what happens when information that was unknown becomes less unknown. Though slipping is widely perceived to be a "bad" thing, it is the symptom of a good thing, as a fever is the sign of the body's immune system at work.

Although it is undesirable to have so many unknowns that slippage occurs, it is not an unusual situation and may even be the norm. This is because much of contemporary software development is essentially experimental, i.e., new platforms, new operating systems, new programming technologies often coalesce on new programming projects to create a high degree of uncertainty.

In order to avoid calamity, certain measures should be undertaken in connection with a slip. Ideally, one or more of the pre-identified unknowns caused the slip. It is important that everybody involved understand that the risk to the schedule had been known previously. Alternatively, it is essential to understand how the unknown(s) had come to be overlooked. How this gap occurred should become part of the group knowledge for future success.

Also, determine whether or not people are working on the correct things. Often, slips occur because members of the team become occupied with features of marginal consequence, or features that are not part of the core product message.

If the slip was a surprise, your communications system is broken, and dramatic communications efforts are required. Large amounts of detail must be brought to the surface for everybody on the team to see. Assess the reality of all current near-term estimates. Expose denial. Team defensiveness will have to be pushed back for the purposes of group learning.

Slips reveal your team's weaknesses, presenting a good opportunity for insightful management and mentoring. Make sure that each individual who has a role in the slip receives the needed guidance and support.

Slips are also an opportunity to re-evaluate the feature content and resource loads, generally with an eye toward decreasing the features and shoring up weaker areas on the team.

A good slip should be a net positive.

9. Low tech is good. A smaller effort is almost always more desirable than a larger one. Delivering great software on time requires that we value an understood solution much more highly than one fraught with unknowns. Keep in mind that customers would almost always rather see progress than promises.

10. Design time at design time. The product will ship when the design can be shown to be implemented. Developers and their managers often ignore the exigencies of time when creating a design. Instead, they should consider the implementation time as a critical design element.

When evaluating alternative design decisions, the one that takes longer to implement is consuming more time and should therefore be disadvantaged in comparison to the alternative. This must always be weighed. Often, when appropriate design value is awarded to timeliness, implementation time can be substantially compressed.

11. If you build it, it will ship. Conversely, if you don't, it won't. The product should be built every day, along with all setup scripts and online help, in a public place, where QA can conduct appropriate assessment of daily status, and the entire team can observe progress or its lack. This is the single biggest indicator that a team is functional and a product is being developed.

12. Portability is for canoes. And system software. Even discounting the added development burden, with the addition of each additional platform the job of QA increases substantially. While clever QA management can minimize the burden somewhat, the complexity of multiplatform support is beyond the reach of most development organizations.

Place your bets. Demand multiplatform support from your system software vendor, then build your product on the absolute fewest number of platforms possible.

To be continued in the Sept. 15 issue of SD Times.

A video of Jim McCarthy presenting the 21 rules to an audience, as well as the related book, "Dynamics of Software Development: Don't Flip the Bozo Bit and 53 Other Rules of Thumb for Shipping Great Software on Time," are available at www.mccarthy-tech.com.

Jim McCarthy led software development teams at Bell Labs, The Whitewater Group, and Microsoft Corp. He is the author of "Dynamics of Software Development" and, with Michele McCarthy,"Software for Your Head."

I would suggest that Mr. Holub might want to conduct a bit more research about various software products before reviewing them in his column.

It would be a shame to see the reputation of an open-source framework soiled for the wrong reasons.

G. Scott Gelb
Center of Engineering Computing
Washington University in St. Louis

While I always enjoy the commentary of Allen Holub, in this case I would like to point out two inaccuracies in his July 15 column.

First, the draft of JDO spec 2.0 does not mandate using build-time bytecode enhancement. So there is nothing stopping JDO vendors from developing products that rely on reflection (or, more precisely, runtime code generation, such as in the case of Hibernate, which uses Cglib runtime enhancer).

Second, Hibernate does not rely on getters/setters to "tag the fields that need to be stored." Hibernate can access private instance variables directly if "field" access level was specified in the mapping file.

Alexander Ananiev
MyArch.com

CLARIFICATION

BusinessObjects 6.5 from BusinessObjects SA was mischaracterized in an article in the Aug. 1 issue. It is a business intelligence suite.

WHAT DO YOU THINK?

SD Times welcomes feedback. Letters should include the writer's name, company affiliation and contact information. Letters become the property of BZ Media and may be edited for space and style.

Send your thoughts to feedback@bzmedia.com, or fax to +1-516-922-1822. Please mark all correspondence as Letters to the Editor.

Are Your Company Databases on the Grid?

DATA WATCH

More than 37 percent of developers are either implementing grid technologies for their enterprise databases now or plan to do so within two years, according to the Database Development Survey Summer 2004, published by Evans Data Corp. When asked the same question six months ago, 21 percent said they were implementing or planning such an implementation within two years.

The survey showed that more than 17 percent were preparing to implement grid technology within a year, compared with just 7 percent from half a year earlier.

In a push that according to Evans is being led by Hewlett-Packard, IBM and Oracle, grid computing distributes IT resources and application workloads over low-cost Intel and AMD-based server clusters running Linux.

Source: Evans Data Corp, Database Development Survey Summer 2004
www.evansdata.com

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Rebel Without a Code

I'm a rebel. There are times I don't validate input data. I don't always check my HRESULTs. I've written code that assumes a file exists. Yeah, I'm the coder your mother warned you about.

I imagine my greatest unsafe piece of code was a bit of e-commerce I did a few years ago. I was selling a piece of writing for a couple of bucks. I used PayPal, which allows you to specify a URL to which PayPal posts back after the buyer completes the transaction. I just specified a nonsensical page name and wrote a handler for that page that searched the post for the phrase "TRANSACTION APPROVED"—if it existed, I shot off an e-mail to the buyer, giving them a download URL, which again was totally public except for being in a directory named "asdfsuweruiou123" or some such.

Some readers will be scandalized by these confessions—puritans ready to brand me with a scarlet "Buffer Overflow" or "Network Sniffer." The puritans will say that doing the right thing is not that much harder than doing the wrong thing. There is a great deal of truth in that.

Despite the changes since the 1980s in what and how we code, three-fourths of the cost associated with a piece of code comes *after* initial release. Maintenance is *still* the dominant process in software development. To a large extent, this is why I strongly advocate explicitly typed languages, despite the surge in popularity of implicit typing: The milliseconds gained by not setting down your type intention are vastly outweighed by the seconds required to recreate that intention during maintenance.

So, how can I possibly justify my carefree coding?

Windows & .NET Watch

Let's return to my little e-commerce project, which took me half of a Saturday afternoon to set up. I made a couple of thousand dollars, there was never any evidence of someone stumbling across the download, and within a week, my file was being traded on peer-to-peer networks.

Would I have made a penny more if I had spent a week setting up a certificate, parsing the post-back properly, and generating a dynamic download URL? Nope. For one thing, there was never any evidence of my being taken advantage of. For another, I simply would not have invested the time to write a by-the-book e-commerce back end.

The economic analysis of a threat is pretty easy: the probability of exploitation times the cost of the exploit. Spend one penny less than that amount and you're rational; spend one penny more and you're irrational. The amazing thing about Internet threats is how the probability of exploitation is nonlinear over time: One can be carefree for days, weeks or months, but once one bad guy discovers the exploit, *ka-boom*!

Take e-mail, for instance. I have a "dark" e-mail address that never gets spam. Another address has been posted on the Internet and receives several hundred spams per day.

Even more interestingly, I have a "dead letter" address where misaddressed e-mails to my domains go; I must have once triggered a Web bug in one of these bizarrely addressed e-mails because I also receive daily spam to this particular nonexistent recipient. I imagine that one day, a random address generator will come up with my dark e-mail address, and if I'm unlucky, that address will become as spammed as my others.

Visibility is the other great exposure to risk. Every binary Microsoft releases is scoured for vulnerabilities. Even more astonishing is the reliability of an assault on a high-profile game. Last year, I came up to speed on modern cracking techniques. I was stunned—not because there are easy routes to cracking DRM and copy-protection schemes (although absurdities exist, such as the music protection schemes that can be foiled by turning off Windows' Autoplay)—but rather because of the sophistication of the attacks.

Games and high-value software are disassembled and stepped through, line by line. The most cunning hashcode techniques are reverse-engineered, outwitted and patched, often by the time the software is available in retail stores.

I feel sorry for the people at the game companies, and the rest of us are fortunate that the game-cracking community does not have a political agenda.

If your work is going to be long-lived or visible, you have to take the puritan approach to your code. But even within a corporate environment, there is a place for rebel code. Figuring out a new algorithm? Prototyping an interface? Migrating data? These things can be coded fast and loose, as long as the code is immediately retired, or refactoring for safety is the very first "feature" added. Once rebel code is hidden behind features and polish, its dangerous compromises become invisible. It's no longer a rebel. It's just trouble. ▮

Larry O'Brien is a technology consultant and analyst, and the founding editor of Software Development Magazine.

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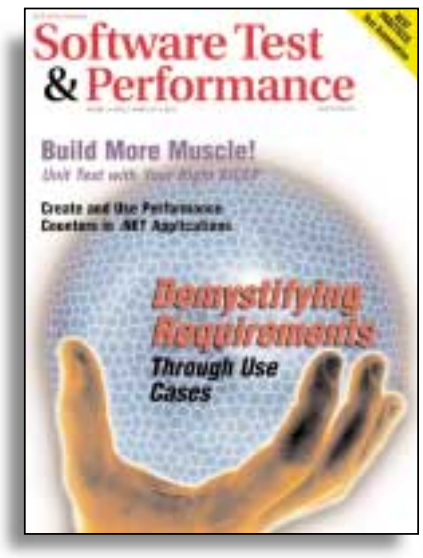

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Assessing Sun-Novell Rumors

The Aug. 2 issue of the Wall Street Journal contained an article that attributed to Sun Microsystems Inc. president Jonathan Schwartz comments regarding Sun's inspection of Novell as a possible acquisition target. If true, these comments, I believe, do not augur well for either company. It's hard to determine which one would be worse off if such a merger or acquisition were to take place.

Both companies share two important defects that I think will be additive should the companies merge: They're losing money and they lack strategy.

Novell has lost money during the past three years and in seven of the past eight quarters. During this time, it has announced a variety of different strategies. It bought Silverstream for US$210 million and announced to an incredulous analyst corps that it would become the fastest executing Java platform anywhere. As we know, this went nowhere.

With no explanation of strategy, Novell then embraced open source and purchased Ximian in 2003 and SUSE Linux in 2004. At the point when the company should have articulated a coherent strategy for these acquisitions and explained how they dovetailed with NetWare, Novell remained frustratingly silent.

With neither a Linux strategy nor an exit path for its diminishing NetWare product lines, I don't see any way that Novell can make profits of any real significance. The one area that has held up is the consulting services that now represent more than a third of the company's income. This income derives in part from Novell's 2001 acquisition of Cambridge Technology Partners.

Possibly Novell can position itself one day as the go-to vendor for Linux services in the enterprise. But this puts it in the line of fire with IBM—one of its principal backers—and hardly provides much useful value for a Sun acquisition. Even Schwartz was unable, or at least unwilling, to articulate what he thought was attractive in Novell other than it would deprive IBM of its principal Linux distribution. (I presume he was being facetious even though this was reported as a serious comment.)

Integration Watch

Sun's supposed interest in Novell is actually rather troubling. Regular readers of this column know that I feel very pessimistic about Sun's long-term prospects.

Like SGI, Sun was chased out of the workstation market by low-cost Intel boxes. Unlike SGI, it landed on its feet in the server space early enough to pull off an entire product line transition to servers. This adaptation saved the company.

However, in the server space Sun has formidable foes in HP and IBM. As Intel servers from these companies ate into the server market from the bottom, Sun was vulnerable because it had no Intel strategy—a point it made publicly with considerable relish.

After fumbling for a while, Sun began to adopt AMD's 64-bit *x*86 processors. This was a good technological choice, as Sun could distinguish itself from Intel's server partners while delivering processors that were leading the way in server architecture. At this point, it might have seemed a bold strategy to abandon Sun's own SPARC processors and begin migrating clients to AMD servers running Solaris or Linux.

This strategy could not fly, though, because at present, the Opteron processors can scale only to eight-way configurations, and can't go anywhere near the vertical scalability of Sun's server behemoths. With enterprise customers using Solaris on far more powerful systems, Sun was sitting in the unenviable position of having a low-end hardware/software product line that was orthogonal with its high-end line. This untenable situation has been ripening for a full year with no strategic resolution from Sun.

So, stuck at this crossroads, Sun's leaders have to wonder: What are the options? They are agonizingly few. The company sits on a hoard of more than US$6 billion in cash and marketable securities, which most analysts point to as the company's last parachute. Once this is gone, Sun had better be profitable or it will be gone.

What would *you*, faithful reader, buy with that money? Would you buy Novell (which at current market rates would cost roughly $2.5 billion to $3 billion)? Certainly, the services portion of Novell would be a benefit, since Sun has vainly aspired to be a player in services.

But would Silverstream, Ximian, SUSE or NetWare technologies add much value? It's hard to see how. So why would Sun consider this option, much less discuss it in public? I believe that talk of the Novell acquisition was a slip that let us peer behind the curtain, where we could see how few Sun's options are—even when viewed by its own senior management. ▮

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

The Dark Underbelly of Community

When most people think of community, they think of an idealized small town, full of supportive people sharing common values, working together toward common goals. But there are other sorts of communities as well. Dark slums, where a stranger is more likely to cut your throat than give you directions. The general consensus amongst almost everybody that I talk too is that the Java community—at least that part of it that's evident online—is more like turn-of-the-century Calcutta than Anytown, USA.

Since everyone can get huge value out of online forums, it's a pity that the name-calling and general abuse that seems to be the norm nowadays makes it hard to participate.

It's bad enough that the beginners are berated for asking beginner questions. The worst part, though, is the way that knowledgeable programmers who point out the shortcomings of badly done programs or tools are flamed. I've been burnt often enough that I'm reluctant to participate in public forums, and many of the Java luminaries that I know feel the same way.

Interestingly, this mean-spirited behavior seems particularly prevalent in the Java community. Friends of mine in the Python world claim that it's a much nicer place. People are honestly helpful and try to do good work. The Java community used to be like that, but isn't anymore.

Clearly this situation doesn't benefit anyone, but how do you fix things? Here's my advice:

Robert Axelrod's spectacular book "The Evolution of Cooperation" and its sequel, "The Complexity of Cooperation," put the issue of encouraging cooperative interaction into an interesting perspective. Using the classic "prisoner's dilemma," Axelrod creates a mathematical model of cooperation that applies in spades to the real world.

Java Watch

The prisoner's dilemma works as follows: Two prisoners are given the choice to testify against on each other by a district attorney as part of a plea agreement. If neither one "defects," only a lesser charge can be brought (a reward of 1, perhaps just a misdemeanor conviction). If one confesses and testifies against the other, the payback is huge for the defector (a reward of 3, perhaps a simple six-month probation), and the other gets no payback (a reward of 0, meaning 20 years of hard time). If both defect, then the confessions aren't worth much (a reward of 2, meaning both serve a little time).

The question is how to maximize your score over repeated iterations. Over time, you'll get the highest score by cooperating, but if you're in it for the short haul (one round, for example), you win big by "defecting," that is, by trying to improve your situation at your colleague's expense.

Now, apply this observation to an online discussion group. One way to encourage cooperation is to introduce longevity. That is, if the participants expect to regularly interact with other participants over a long period of time, then the tenor of the group will be more cooperative because the long-term payback from cooperation is higher.

There are lots of ways to encourage long-term thinking, even in an environment as fleeting as the Web. First of all, you must make the group a font of useful information. For example, hosting it on a Web site that provides that information in the guise of articles and white papers is a plus.

Second, you must provide a set of real expert participants (you may need to pay them) to foster and fertilize that community, so that more people are motivated to sign up.

Third, have people pay for the right to post. Yes, that's right, contribute money for membership! You're much more likely to value a resource that you've paid for than one that's free.

Next, discussion groups must be safe havens moderated by benevolent dictators who simply will not allow trash-talking messages to be posted. This is not a "free speech" issue: Jerks can exercise their free-speech rights on their own Web sites.

Finally, eliminate anonymous postings. Few of the most offensive comments found on online forums would have been posted if the attackers couldn't hide behind an alias. One approach would be to use a check, or some other form of ID, when you register. To get the right to post messages, your publicly visible name would have to match the one on the check.

Other ideas come to mind as well: I'd love one of the big open-source community sites (such as SourceForge or Slash-Dot) to build an online-shopping-like user-driven rating system to grade other discussion groups. This way you could avoid the groups that were dominated by the egomaniacs.

Something has to be done if there is to be an online Java community in the future. If you have any ideas of your own, I'd love to hear them. ▮

Allen Holub is an architect, consultant and instructor in C/C++, Java and OO Design. Reach him at www.holub.com.

The End-of-Summertime Blues

They say you're supposed to use a sabbatical from work as a time for self-improvement. Some people take classes, or learn a new language, or discover how to catch fish with a spear. I can say that in the spirit of the time I was given to spend away from this office, I was able to better myself in at least one way. Over the past weeks, I got a better tan.

Industry Watch

Despite repeated trips to the beach and town pool, though, I could not completely remove myself from what's happening in the industry, and in the world as a whole.

My first day at the pool, I ran into a neighbor who heads up a Manhattan financial institution's software development department. We asked each other what we were doing there on a Tuesday afternoon, when we normally would have been at work. I explained I was on sabbatical, clearing my head of technology issues and recharging my batteries. He told me he was off because he had to begin to burn the mountain of vacation days he'd accumulated because there was just no time to take off.

He's leading up efforts to upgrade from Sybase 11 to 12.5 and to gain Sarbanes-Oxley and SAS70 certification. He has a team of nine good developers, he said, but lamented that the systems his company runs were developed by long-gone programmers, who wrote little documentation, so his team spends a huge amount of time playing catch-up.

Making decisions to change to something his team doesn't fully understand is difficult at best, and he's left choosing between refactoring an application, or making a quick fix that could further bastardize an already fragmented system. He said his priority now is to move the knowledge out of people's heads so that if, heaven forbid, one of his key developers gets hit by a bus, the company isn't left with a system that can't be supported.

It was at that point, tiring of tech talk, that I excused myself, walked over to the snack bar and purchased a Good Humor Toasted Almond bar, which I savored in the shade of a large piece of corrugated plastic hanging over a small area of the roasting cement park.

Later that week, I went to the beach, and after a few minutes in the sun, grew quite parched. I walked over to the snack bar (notice a leitmotif here?) to get a cold beer, when I noticed another neighbor standing at the tap behind the counter, filling cups with the frothy brew. As I know him to be a programmer, not a bartender, I asked him what he was doing there on a Thursday afternoon. "I'm on leave for the summer, so I'm working here until school starts again." I wondered why it would matter when school started, and he explained that he was no longer programming, but had taken a job teaching in a New York City public school.

"I was outsourced and downsized," he told me, explaining that his company could find less expensive people to do the kind of programming he had been doing. Ah, the benefits of outsourcing really come home to roost, I thought. Another corporate board adds millions to its bottom line, and lines the pockets of its top executives for brilliantly figuring out how to cut costs and raise profits, while my neighbor—and plenty like him—takes a 30 percent pay cut to go from computer programming to teaching math to a bunch of junior-high kids for whom none of the lessons of corporate governance or the labor movement add up. And he's one of the lucky ones, I thought. How many programmers are out of work altogether?

I paid for my beer, went back to my chaise lounge, and began to read the paper. America was under an orange terror alert. Officials believe that a greater threat from terrorists could come in the form of a computer worm or virus, rather than nuclear or biological weapons. These worms, the article said, could cripple our financial markets, leading to a panic not seen since 1929.

That one really unnerved me. Heck, right now, we have so much spyware and virus activity that most computer users have multiple instances of these agents on their PCs and aren't even aware of it. And the major companies—Microsoft, primarily, as it dominates the operating system and browser markets—seem helpless to stop this. All that spending money to fix these problems does is cut into the bottom-line profits. Nothing to gain there.

But what will happen when something even more malicious comes down the pike? Will the government launch a unilateral cyberwar, running roughshod over the rights of global Internet users? The administration could try to justify it by claiming there are weapons of mass destruction in cyberspace—only this time there actually might be proof.

Then I thought that the next time my sabbatical rolls around, in another five years or so, I'll just skip it. All this time away from the world of high technology is just too depressing. ■

David Rubinstein is editor of SD Times.

BUSINESS BRIEFS

Industry research company **Gartner Inc.** has repurchased roughly 20 percent of its outstanding Class A and Class B Common Stock. Gartner has accepted for purchase 11,339,019 shares of Class A Common Stock at a purchase price of US$13.30 per share, and 5,505,305 shares of Class B Common Stock at a purchase price of $12.50 per share, in accordance with the terms and conditions of the self-tender offer that expired on July 30. In addition, the company announced plans to repurchase more than 9 million Class A shares from investment company **Silver Lake Partners LP**, at the same $13.30 per-share price. Gartner indicated the purchase will have no impact on third-quarter earnings. Companies generally buy back their own stock when they believe the price has gone too low, or when they think a takeover is possible . . . Eric Benhamou, chairman of Palm OS developer **PalmSource Inc.**, has announced he will resign the post as of Oct. 28 but will remain as chairman of hardware maker **palmOne Inc.**

EARNINGS: Computer Associates International Inc. has reported revenue of US$860 million for the first quarter of fiscal year 2005, ended June 30. "We posted solid results this quarter in a challenging industry climate," said Ken Cron, CA's interim chief executive officer. Revenue for the quarter was 9 percent higher than in the same quarter a year ago, the company reported. During the quarter, CA named Jeff Clarke COO and CFO in the wake of an accounting scandal that resulted in former CEO Sanjay Kumar leaving the company and other top executives admitting guilt . . . **Sybase Inc.** reported revenue of US$188 million for its second-quarter 2004 fiscal year ended June 30, a slight decline for the same quarter a year ago. Pro forma net income for the quarter was $17.3 million, down from $23.2 million last year. The company also repurchased about $30 million worth of its own stock during the quarter . . . Data access and caching product company **Persistence Software Inc.** announced revenue of US$2.3 million and profits of $129,000, or 5 cents per share, for the second quarter of 2004 ended June 30. Revenue was down from the $2.9 million reported for the same quarter of 2003 but was up from the $2.1 million claimed in the first quarter of 2004 . . . Israeli business integration tool provider **Magic Software Enterprises Ltd.** has reported second-quarter 2004 revenue of US$16.67 million, a 9 percent increase over the $15.3 million reported for the same quarter of 2003. Net profit was $914,000, up 22 percent from the $752,000 profit posted a year earlier . . . Following sharp declines in server and storage revenue, which account for 17 percent of the company's income, **Hewlett-Packard Co.** chairman and CEO Carly Fiorina in mid-August announced the termination of three top executives, all from Compaq. For its third quarter ended July 31, revenue from Enterprise Servers and Storage dropped 5 percent from a year ago to US$3.4 billion, Business-Critical Servers declined 8 percent to $828 million, Alpha plunged 32 percent, and NonStop sank 25 percent. Storage revenue was down 15 percent to $709 million. ■

CALENDAR OF EVENTS

Intel Developer Forum Sept. 7–9
San Francisco
INTEL CORP.
www.intel.com/idf/us/fall2004/systems

Borland Conference Sept. 11–15
San Jose
BORLAND SOFTWARE CORP.
info.borland.com/conf2004

VSLive Orlando Sept. 11–15
Orlando, Fla.
FAWCETTE TECHNICAL PUBLICATIONS INC.
www.ftponline.com/conferences/vslive/2004/or

Embedded Systems Conference Sept. 13–16
Boston
CMP MEDIA LLC
www.esconline.com/boston

SunNetwork Sept. 14–16
San Francisco
SUN MICROSYSTEMS INC.
www.sun.com/sncsf2004

International Function Point Users Group Annual Conference Sept. 19–24
San Diego
IFPUG
www.ifpug.org/conferences/annual.htm

SD Best Practices Conference & Expo Sept. 20–23
Boston
CMP MEDIA LLC
www.sdexpo.com

IBM DB2 Information Management Technical Conference Sept. 20–24
Las Vegas
IBM CORP.
www.ibm.com/services/learning/conf/us

Software Business 2004 Sept. 22–23
San Francisco
SOFTWARE BUSINESS MAGAZINE
www.softwarebusinessonline.com

Team Software Process User Group Conference Sept. 27–28
Pittsburgh
CMU SOFTWARE ENGINEERING INSTITUTE
www.sei.cmu.edu/tsp/user-group.html

Access-VB-SQL Advisor Live Sept. 29–Oct. 3
Las Vegas
ADVISOR MEDIA INC.
advisorevents.com/CMB0409p.nsf

WebSphere Technical Exchange Oct. 4–8
San Francisco
IBM CORP.
www-3.ibm.com/services/learning/conf/us/websphere

TechXNY (PC Expo) Oct. 5–7
New York
CMP MEDIA LLC
www.techxny.com

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

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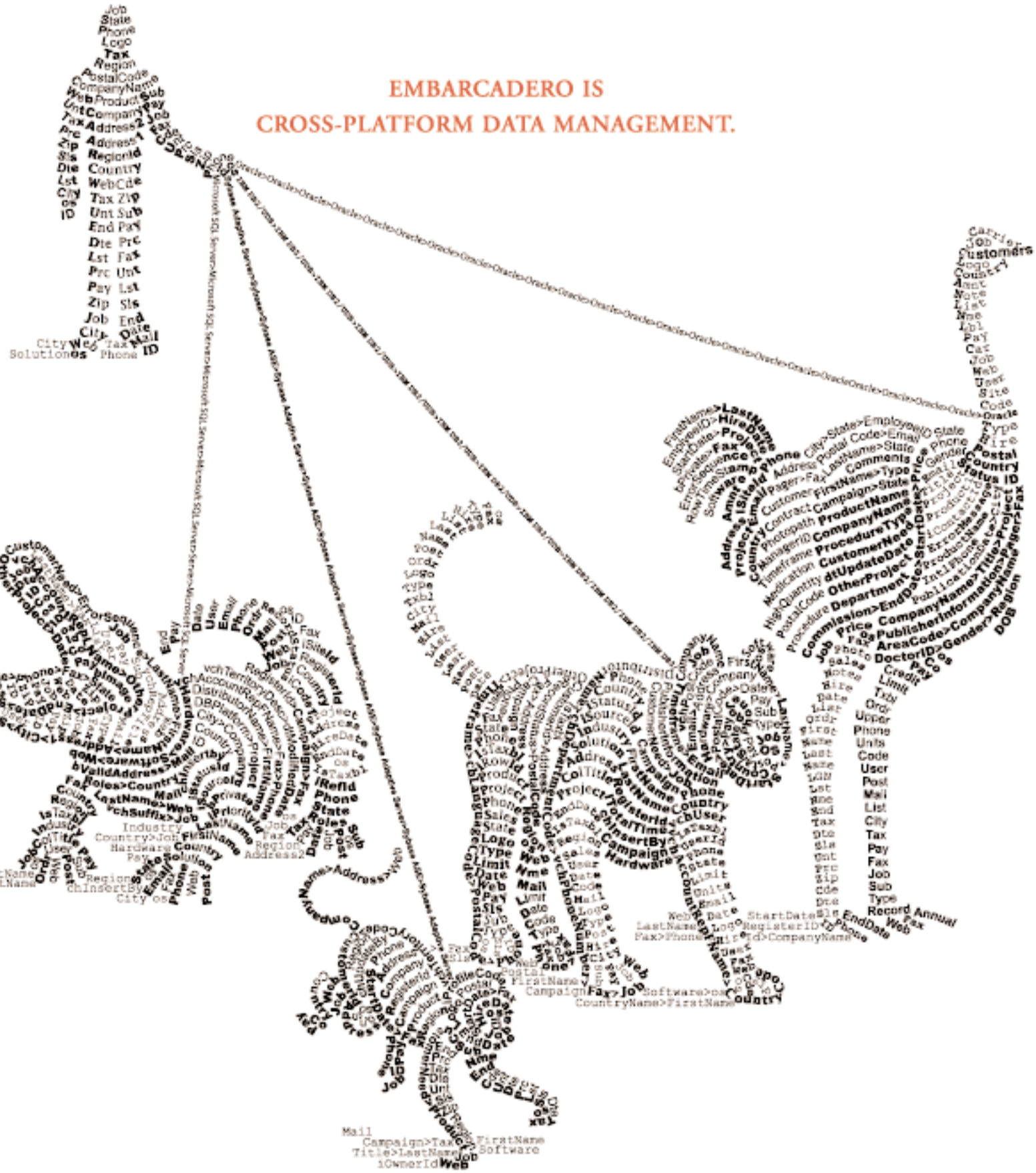

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